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# APPLICATION OF BUSINESS PROCESS MANAGEMENT FOR CORPORATE SUSTAINABILITY

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University of Plymouth

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**UNIVERSITY OF  
PLYMOUTH**

**APPLICATION OF BUSINESS PROCESS MANAGEMENT FOR  
CORPORATE SUSTAINABILITY**

by

**FELICITAS JOHANNA BREITENBACH**

A thesis submitted to the University of Plymouth  
in partial fulfilment for the degree of

**DOCTOR OF PHILOSOPHY**

Plymouth Business School

[In collaboration with  
University of Applied Sciences Munich]

**January 2020**

## **Copyright Statement**

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## Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment.

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## **Abstract**

In the light of the current debate on climate change and its ever-growing impact on the corporate world this thesis deals with the integration of sustainability into corporations. Its focus lies on the integration of sustainability through business process management (BPM). A comprehensive literature review on both corporate sustainability and BPM has been carried out. Research still fails to establish a link between sustainability and the strategic and operational management. Even though the integration of sustainability into business process management is explicitly recommended, no framework has yet realized this goal. In the light of the identified research gap one main research question evolved: How can Corporate Sustainability be integrated into Business Process Management?

In addition to the theoretical data collection, this thesis is based on the experience of actual practitioners. This was achieved by a total of 21 interviews with employees responsible for sustainability. Coding the data produced a set of success factors and difficulties for the integration of sustainability, as well as requirements for a possible method for the integration of sustainability. This has never been described in literature to this extent before. So far literature does not provide a comprehensive set, as it is done within this thesis. From these results, a novel framework was developed to support companies with the sustainability integration using BPM. This initial framework was validated in a second round of interviews. The validation resulted in a refined Sustainability Integration Framework 2.0 which represents the main contribution to knowledge of this thesis. The framework shows the connection between the corporate strategy and the sustainability integration process. It further shows the relevant input factors that need to be considered when developing a sustainability strategy. It also

demonstrates the most important steps that need to be undertaken when integrating sustainability into BPM. The framework is a novel approach that helps managers to structure and understand the process of integrating sustainability. It provides a clear guideline and a holistic approach for the integration of sustainability into business process management that has been requested by researchers and practitioners.

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# 1 Introduction - Corporate Sustainability

Corporate sustainability is a term that developed from the idea that companies should contribute to the goal of sustainability. The discussion, which is very prominent now, did not start recently, in fact it dates back to 1732 when Hans Carl von Carlowitz, who discussed sustainability within forestry, stated that there needs to be a balance between the planting and the cutting down of trees (Carlowitz, 2009, Grober, 1999). This is broadly the same idea that is still present when discussing ecological sustainability (Baumgartner, 2009), minimizing the impact of our actions on the environment, either through reduction of the impact or through compensation for the impact (Nguyen and Slater, 2010). What is meant by sustainability has further developed in recent years. It is not just a matter of ecology anymore. Social and economic sustainability are also an essential part of it (Elkington, 1999). The main concern of social sustainability is the protection of people and of environmental sustainability it is the protection of our planet. Several different groups need to take responsibility when striving for the goal of sustainability. Governments and organisations try to support this process through standards, laws or tax reductions. For example, Germany legislated the EEG 2014<sup>1</sup>, which has the goal to support the roll-out of renewable energy and the UN passed the Sustainable Development Goals as well (United Nations Global Compact, 2014). Society itself also started to contribute to this goal for example, customers take into account whether the products or services they purchase are sustainable (Nguyen and Slater, 2010). In recent days the “Fridays for future” movement, which was brought to life by the Swedish student Greta Thunberg, has attracted worldwide attention. This social movement tries to

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<sup>1</sup> The Renewable Energy Sources Act supports the expansion of renewable energy by law.  
(<http://www.bmwi.de/EN/Topics/Energy/Renewable-Energy/2014-renewable-energy-sources-act.html>)

urge both companies and governments to adhere to the new climate agreement that was agreed upon by 190 countries on the 2015 United Nations Climate Change Conference in Paris. A recent example, that demonstrates the growing focus on companies in matters of sustainability, is the protests against the Siemens AG by “Fridays for future” supporters in Germany, concerning the building of a coal mine in Australia. This shows that the worldwide attention to sustainability is continually growing and the corporate world is very much part of it.

Companies are responsible for securing sustainability (Fineman, 2002). Over the past two decades, the importance of sustainability and especially the importance of sustainability in organisations has steadily grown. It has developed to a state where it is not enough to show good will, without raising awareness of the importance of becoming sustainable. As mentioned before, more and more social pressure towards companies has been building up. Expectations of the modern-day society are shifting towards sustainability in the face of climate change. Corporate sustainability is now one of the most important business movements worldwide (vom Brocke et al., 2012) and it has become critical to organisations (Kiron et al., 2015). “What began as ad-hoc damage-control responses by business to environmental accidents, corruption scandals or accusation of child labour in supply chains, has evolved into a proactive, coherent global movement” (EFQM, 2015, p. 3).

A reason for companies to become sustainable, is the positive impact it has on the short- and long-term value of a company (Bonini and Görner, 2011). Other advantages can be a reduction of costs, improved market access, improved public profile and image (Robinson et al., 2006). A prominent example of an improved public profile and an increase in market value is the American

automotive and energy company TESLA, which has earned a lot of praise for its introduction of electric cars and solar panel manufacturing (Francisco, 2017). Epstein and Roy (2001) also name benefits companies can achieve through sustainability actions: customers may be more loyal and might purchase over the long-term, employees tend to commit to great service, innovations can be supported by that and employees seem to be more reliable. The shareholders generally provide capital over the long-term. Organisations themselves have also already recognized that sustainability is important. In a survey from 2015, the most common reason for sustainability activities was it being a factor for success and a social expectation (Loepp and Betz, 2015). If an organisation does not consider integrating sustainability principles in their strategy and achieve corporate sustainability, the consequences could be a loss of competitive advantage and business opportunities (Robinson et al., 2006). Sustainability appears to be critical to the long-term competitiveness of companies, it can be one of the competitive differentiators and important for the long-term profitability of companies (Epstein and Roy, 2003, Lubin and Esty, 2010, Savitz, 2006).

Different studies analysing corporate sustainability and its implementation within the organisations have been conducted. The surveys showed that the importance and relevance of companies' engagement in sustainability is steadily growing, but there are still some barriers for companies when integrating sustainability into their strategy and into their daily business.

In 2011, McKinsey conducted a survey that showed that companies do not have a choice whether they should be engaged in obtaining sustainability. They can only decide whether they see it as a duty or whether they want to see it as a chance to increase their corporate value, while increasing the value they create for society (Bonini and Görner, 2011). An increasing number of companies have

started to manage sustainability; they have tried to integrate the goals in different processes, such as the mission and values, the external communication or the corporate culture (Bonini and Görner, 2011). Nevertheless, they still have difficulties with integration, for example insufficient data or information to implement initiatives, missing integration in the performance management system, absent engagement of some business units and a lack of the right capabilities and skills (Kiron et al., 2012). Another problem concerning the integration of sustainability is that companies struggle to see the connection between their sustainability efforts and the financial performance of the company. Sustainability is not permanently on the agenda of the management in all businesses, there are also still barriers and obstacles for the businesses when addressing sustainability. Baumgartner and Rauter (2017) state that “only limited progress towards sustainable development has been observed”. Recent research still has not managed to improve and support the strategic orientation, concerning the introduction of practices and goals that aim to implement sustainability (Baumgartner and Rauter, 2017, Oertwig et al., 2017). The most named obstacles are competing priorities, insufficient resources, and a lack of frameworks to incorporate sustainability into the core business (Kiron et al., 2015, Loepp and Betz, 2015). The results show that sustainability is still at its beginning and significant research needs to be done to develop additional methods and tools to support the development of corporate sustainability. A clear link between sustainability initiatives, the strategic management and the operations management needs to be established in future research (Opresnik and Taisch, 2015). Furthermore future research needs to show how the integration of sustainability into the strategic management could be done in practice, including appropriate tools (Engert et al., 2016, Loepp and Betz, 2015).

To achieve the necessary transition towards sustainability, businesses are central actors (Baumgartner and Rauter, 2017). Business is the only institution powerful enough to foster the changes necessary for ecological and social sustainability (Gladwin et al., 1995). However as shown above companies still struggle with the integration of sustainability and research still lacks tools to identify and attain goals that contribute significantly to sustainable development (Baumgartner and Rauter, 2017, Lozano, 2012). Accordingly, the aim of this thesis is to develop a framework that supports the integration of sustainability into the business process management, which is a management tool that is part of strategic management as well as part of operations management. “Business process management (BPM) technology, with its focus on understanding, modelling and improving/optimizing business processes, is a key starting point” (Ghose et al., 2010, p. 103).

The author of this thesis has a high personal motivation performing research in the area of sustainability. She is convinced that it is our obligation to behave in a sustainable way to secure an environment worth living in.

The main research question of this thesis is: How can Corporate Sustainability be integrated into Business Process Management?

To answer this question, this thesis aims to develop a framework that helps managers to better understand and manage the integration of sustainability, in the sense of economic, environmental, and social sustainability into business process management. Although the Triple-Bottom-Line has recently been questioned by its inventor, John Elkington, it still represents the actual understanding of sustainability and is therefore used within this thesis. Further it will be examined within this study, how companies are already integrating corporate sustainability, what difficulties companies face when integrating



sustainability, and what they are requiring from a method that aims to support the integration of corporate sustainability into business process management.

To answer the research question a qualitative research approach was selected and semi-structured interviews were conducted in 15 companies. The interviews were analysed by theme using coding and they were analysed in depth by matching the answers with a questionnaire.

The findings of the study include a set of success factors and difficulties, identified by the questioned companies, regarding the integration of corporate sustainability. Furthermore, a list of requirements regarding a method for the integration is assembled within this thesis, based on the results from the literature review as well as on the results of the data analysis. The list of requirements is developed in such a way it can also be used for future research on the development or assessment of sustainability integrating approaches. The knowledge that was gained through the literature review and the data analysis was used to develop a framework for the integration of sustainability into business process management. The developed framework was then validated, and the findings of the validation were used for the development of a framework 2.0. This framework represents the main finding of this thesis. The framework shows the process for sustainability integration as well as the context of this process.

After laying the groundwork why an integration of sustainability is necessary in this chapter, a comprehensive review of the current literature on corporate sustainability as well as business process management follows in Chapter 2.

The main results and findings of the literature review lead to the research questions of this thesis in Chapter 3. Based on the research questions, in Chapter 4 the research methodology for this thesis will be developed, including the research paradigm, the research design, and the research methods. Further the data collection, data analysis, and quality criteria are part of Chapter 4. In Chapter 5 the results of the data analysis, the coding, and the analysis according to the questionnaire will be presented. This chapter ends with a summary of the main findings, which represent the basis for the development of the framework for the integration of sustainability through business process management. The validation of the framework will be presented in Chapter 6. To apply requirements identified in the validation process a refined framework is presented in Chapter 7. This thesis closes with a thorough discussion in Chapter 8, followed by the final conclusion in Chapter 9.

This research was carried in cooperation between the Plymouth University and the University of Applied Sciences Munich. It was entirely conducted in English language except for the interviews, the interview transcripts, and the initial line by line coding which were held and written in German.

## **2 Literature Review on Corporate Sustainability and Business Process Management**

In this chapter, a literature review about the actual research in the area of corporate sustainability will be presented. The purpose of a literature review is to show the current state of research (Bortz and Döring, 2016). It aims to lay the basis on which research is built (Saunders et al., 2009, Webster and Watson, 2002). Saunders et al. (2009) emphasized that the purpose of a literature review is to gain understanding and insights into existing research and knowledge and to identify trends that have emerged in the research area. Whereas it is not about the reporting of what has been done, it is about the critical evaluation of previous research (Bortz and Döring, 2016, Hart, 2018). A literature review has several purposes such as understanding the origins and structure of the subject (Hart, 2018), refining research questions and objectives, highlighting research possibilities that have been overlooked in research to date, discovering explicit recommendation for further research (Gall et al., 2007). The results of the literature review also influence the research design and the methodology (Seuring et al., 2012).

Conducting a literature review in an emerging field, such as corporate sustainability, is always a challenge, due to the high number of published articles. To ensure a high quality of results the process has to be made transparent (vom Brocke et al., 2009). In order to acquire the best possible knowledge and evidence that is available concerning corporate sustainability and business process management a structured literature review was conducted. The goal of a structured literature review is to gain the best quality and most relevant evidence available (vom Brocke et al., 2009). In contrast to a narrative review this provides the researcher with comprehensive knowledge without bias, due to its

structured, transparent and replicable approach (Tranfield et al., 2003, Seuring et al., 2012). Through the structured and methodological approach, the reader of the literature review is able to assess the quality and the completeness of it (vom Brocke et al., 2009). Since there are few or no quantitative studies available in the field of corporate sustainability a meta-analysis cannot be conducted. Hence a structured review represents the most effective way to acquire the necessary information to formulate the research question (Tranfield et al., 2003).

Various steps have to be taken to conduct a structured literature review. These steps have to be described and documented thoroughly to ensure a high degree of replicability (Tranfield et al., 2003, vom Brocke et al., 2009). First of all the necessary keywords and search terms need to be defined by the researcher, as well as the search strings that fit best. Following this the relevant databases have to be searched. The identified articles and papers then need to be analysed according to inclusion and exclusion criteria defined beforehand by the researcher, to filter out literature that meets the keywords but does not provide relevant information to the specific field of research (Tranfield et al., 2003). For this purpose the title, the abstract and finally the full text are evaluated (vom Brocke et al., 2009). Based on the identified papers a forward and backward search is advisable to identify all the relevant work in the specific research field (vom Brocke et al., 2009).

The figure below presents the major themes that are going to be presented in the following literature review. It includes themes in the area of Corporate Sustainability as well as themes around Business Process Management.

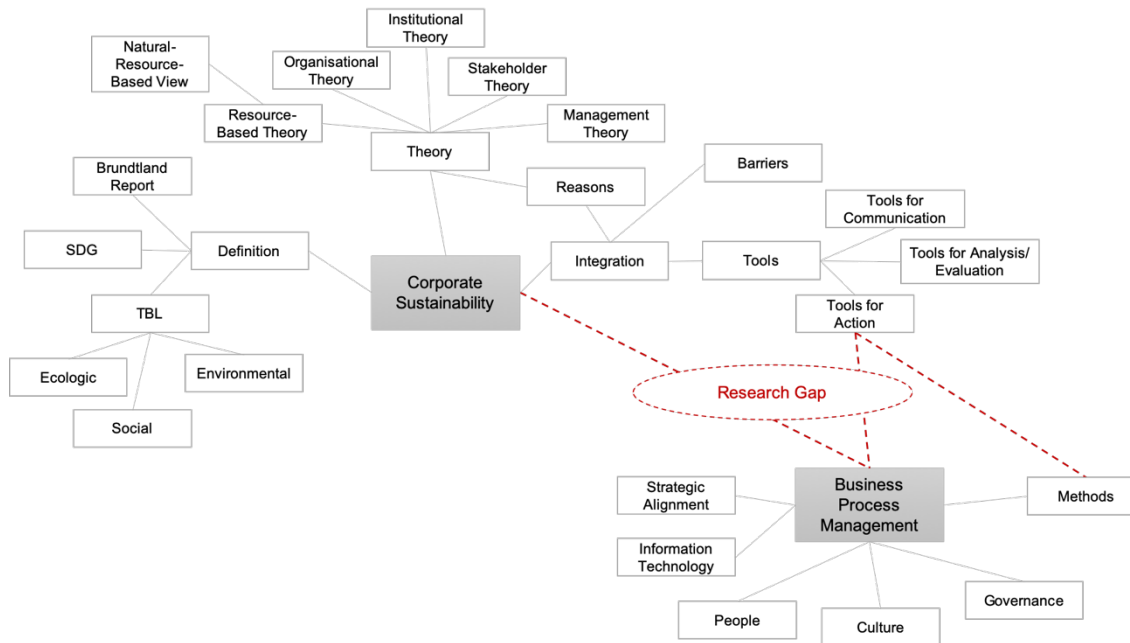


Figure 1 Themes of the Literature Review

As the figure shows there is still a research gap between Corporate Sustainability and Business Process Management. This gap will be further analysed in the following sections and in the chapter Research Questions.

## **2.1 The concept of Corporate Sustainability**

Following the structured literature review approach presented in the section above, this section shows how the literature review was carried out for the research field of corporate sustainability.

The keywords “Corporate Sustainability”, “Sustainable Development”, and “Sustainability” were used to find relevant literature. According to Wilson (2003) the terms “Corporate Sustainability” and “Sustainable Development” are used synonymously. The keywords “Business Process Management”, “Business Processes”, “Process Management”, and “BPM” were also searched, as well as “Sustainability Integration”, and “Sustainability Implementation”.

In summary the following search string was used:

“Corporate Sustainability” OR “Sustainable Development” OR “Sustainability”

AND

“Business Process Management” OR “Business Processes” OR “Process Management” OR “BPM”

AND

“Sustainability Integration” OR “Sustainability Implementation”

For this thesis the following databases were used: EBSCO, ScienceDirect, Emerald Insight, and Google Scholar.

The publications that the searched produced, using the aforementioned keywords, were then evaluated according to the exclusion and inclusion criteria the following table describes these. In the first step they were sorted according to the title. In a second step the abstract was scanned for relevant information. Finally, the full text was looked at to include or exclude a publication.

Exclusion Criteria	Inclusion Criteria
<p>Types: book reviews, calls for papers, technical reports, practical handbooks</p> <p>Publications with secondary focus on sustainability and its integration into the management or strategic level</p>	<p>Publications after 1987 Exception: Earlier publications are taken into account for the description of the historical development of “sustainability”</p> <p>Publications in German or English</p> <p>Peer-reviewed articles/ papers Books Webpages</p> <p>Publications focusing on Corporate Sustainability</p> <p>Publications focusing on Business Process Management and Corporate Sustainability</p>

*Table 1 Exclusion and Inclusion Criteria for the SLR*

Book reviews, calls for papers, technical reports, and practical handbooks were excluded from literature review and only peer-reviewed articles/ papers were included to ensure a high standard of evidence. Furthermore, publications in which sustainability and its integration into the management or strategic level were only secondary focus were also excluded. As stated by Engert et al. (2016) literature with a focus on ‘sustaining economic success’ or the interpretation of ‘sustainability as long-lasting’ was excluded due to its main focus on economic aspects.

Since the Brundtland report, which put sustainability into focus for the first time, was published in 1987, this year was chosen as the starting point for relevant literature. An exception was made for literature used in the chapter about the historical development. Only publications in German and English were included, and most was published in English. A first overview of the literature revealed that

only a small amount of literature focusses on BPM and corporate sustainability at the same time. Because of that, publications that put their focus on corporate sustainability in line with a strategic orientation were also included.

All the sources cited in the papers identified were also considered against the exclusion and inclusion criteria, and if relevant these were brought into the study.

To explain the basic concepts that are mentioned, such as the theories on which the literature is grounded, a separate search was undertaken.

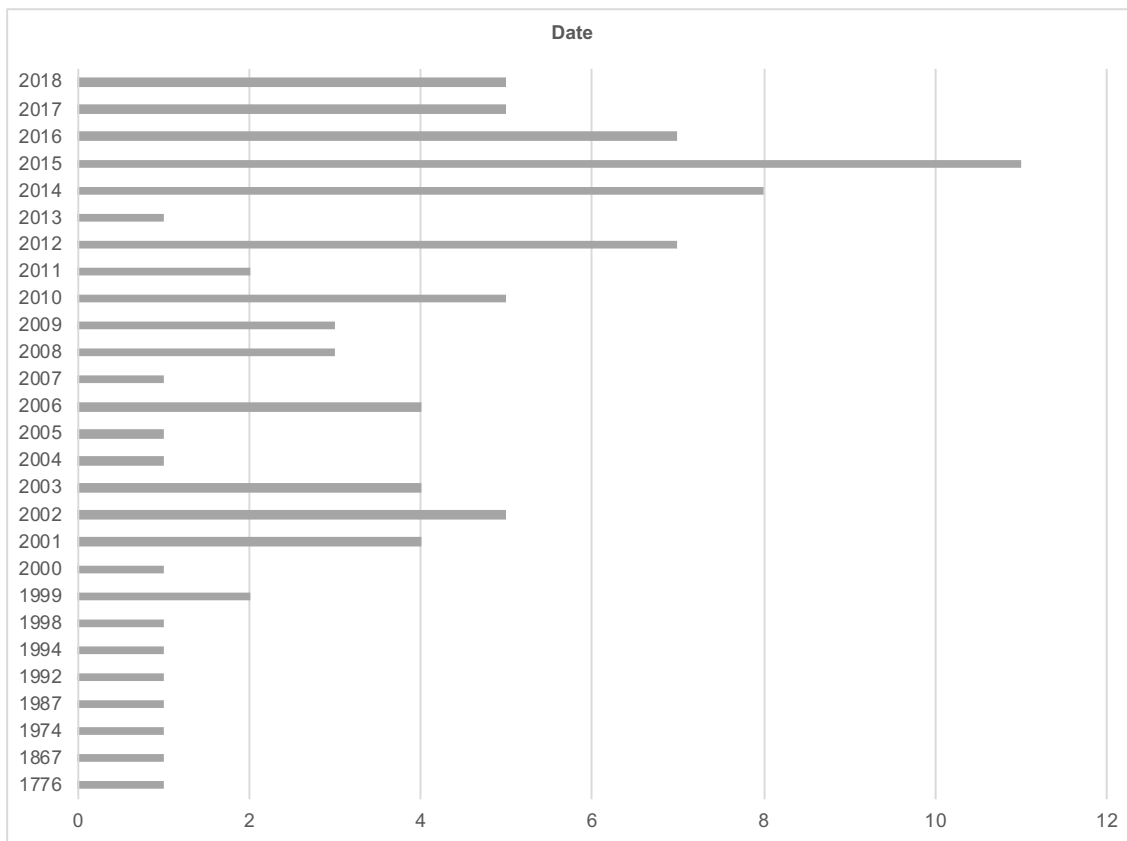
This approach led to a total number of 157 sources that were used for this literature review.

### **2.1.1 Initial Findings on Corporate Sustainability**

Of the 157 sources found through the above described search process 87 sources can be categorized with the major theme of corporate sustainability, 55 sources with business process management and 15 can be categorized with the major theme theory. The used sources including the coding of each source can be found in Appendix A. Six sources were used in the literature review about corporate sustainability as well as in the literature review about theory. Since corporate sustainability represents the main research area of this thesis, the following descriptions deals with the literature on corporate sustainability. The literature concerning business process management and theory will be described in more detail later on in this chapter.

The majority of sources on corporate sustainability is dated from the years 2018 to 2012. With the exception of literature for the description of the historical development, as mentioned above, the remaining literature goes back to the year 1987 when the Brundtland report was published (Figure 2 Number of Articles by Date for Corporate Sustainability).





*Figure 2 Number of Articles by Date for Corporate Sustainability*

The main sources for literature on corporate sustainability were journal articles with a total number of 45. The second largest sources were books, with a total amount of 27, followed by 13 papers from web pages, and two newspaper articles (Figure 3 Number of Articles by Type for Corporate Sustainability).

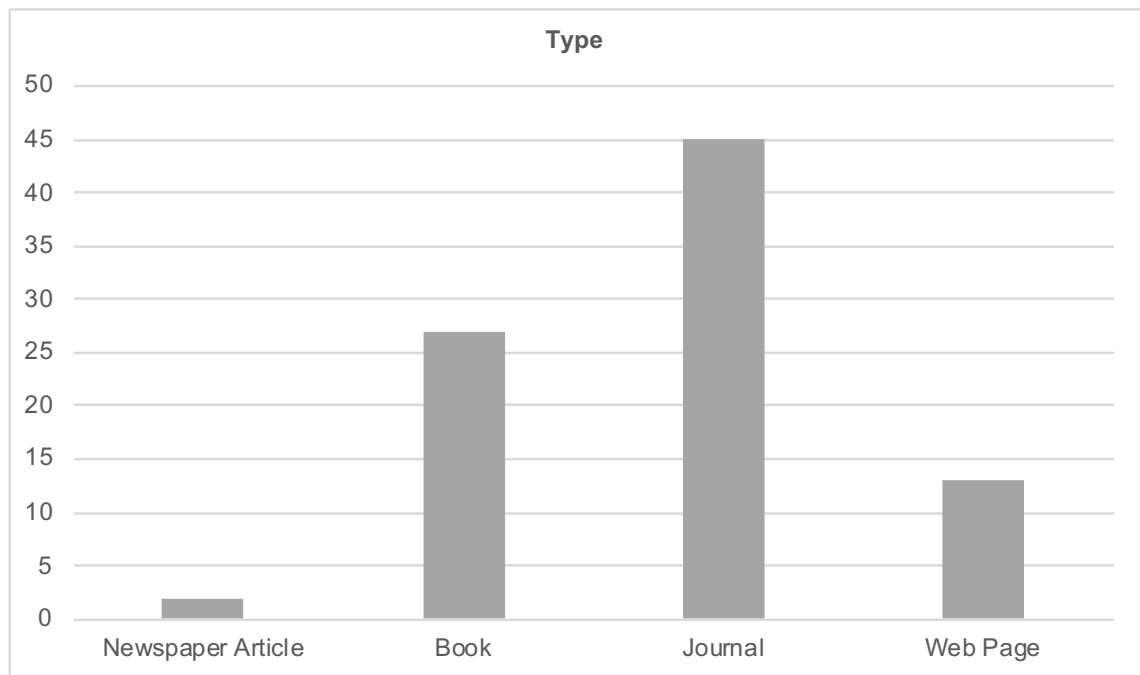


Figure 3 Number of Articles by Type for Corporate Sustainability

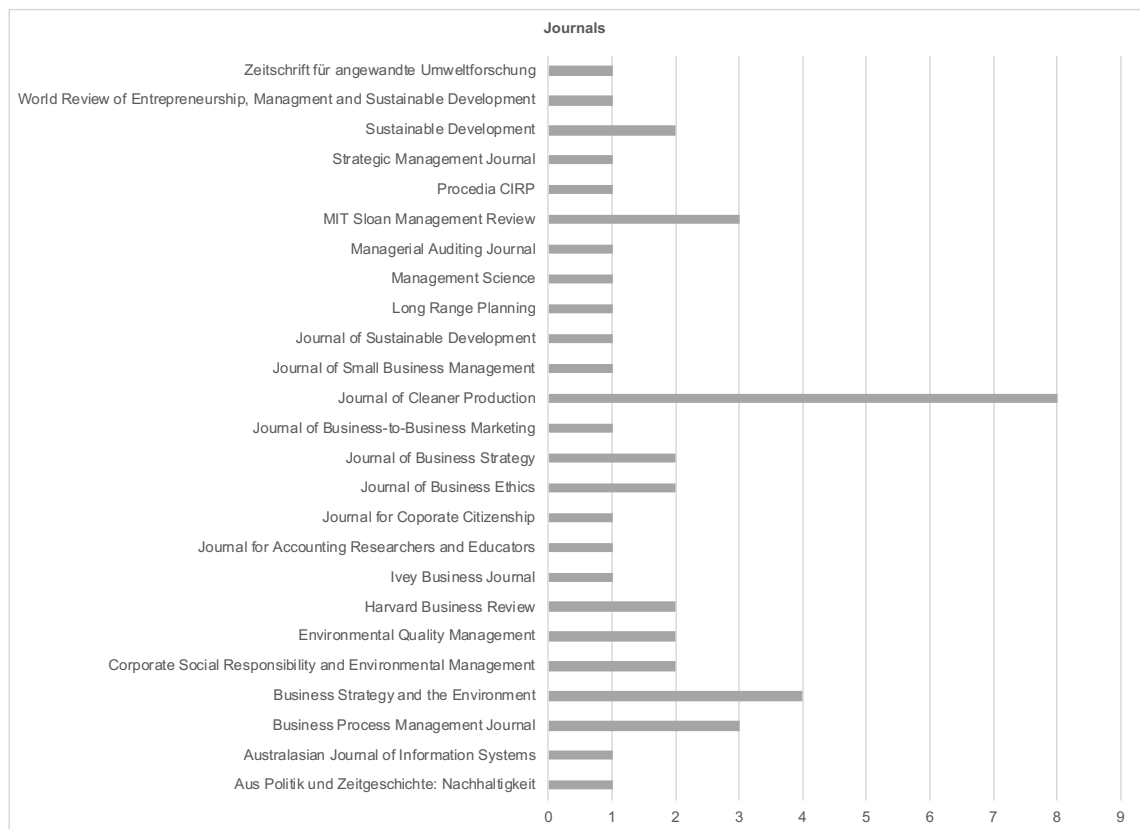
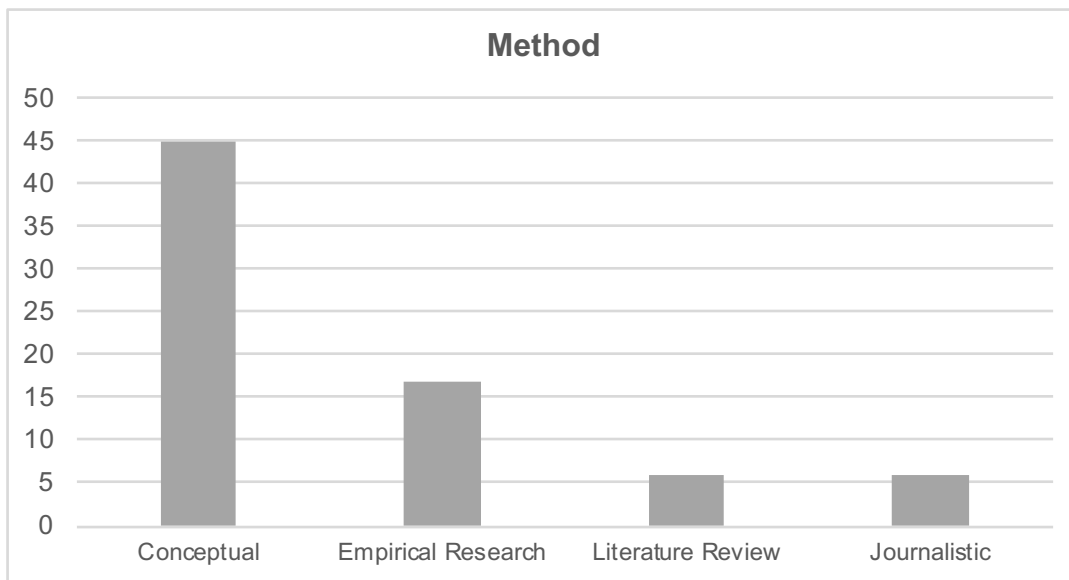


Figure 4 Number of Articles by Journal for Corporate Sustainability

In Figure 4 a more detailed list of journals that were used as sources for the literature review can be seen.



*Figure 5 Number of Articles by Method for Corporate Sustainability*

A further differentiation was made regarding the method that was used in the papers concerning corporate sustainability. Papers originating on web pages were excluded from this analysis because no method could be distinguished. The main method that was used, with a total amount of 45, was conceptual. Seventeen papers carried out empirical research and six papers mainly focused on a literature review or were journalistic (Figure 5 Number of Articles by Method for Corporate Sustainability).

The literature that contributed to the literature review regarding theory in corporate sustainability exclusively came from journals, ranging from 1983 until 2018. A total number of 21 papers was used. Six of these papers were also used in the literature review on corporate sustainability. The remaining fifteen papers were used exclusively in the literature review on theory to establish the groundwork on both theory in general as well as on theory in context with corporate sustainability.

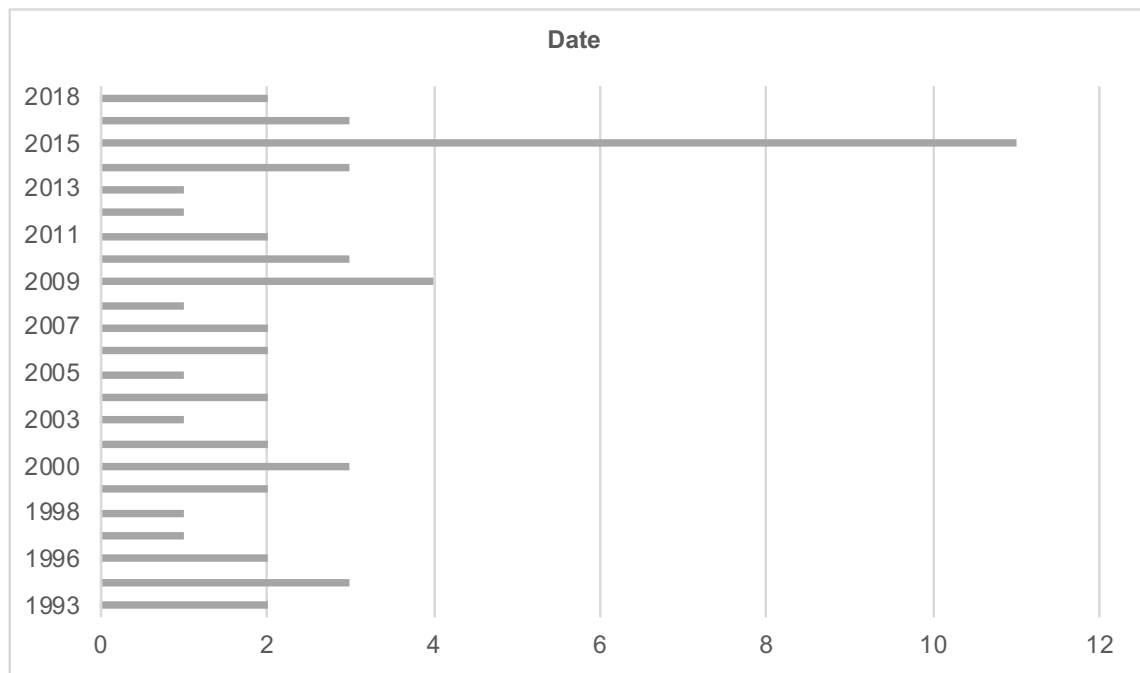


Figure 6 Number of Articles by Date for BPM

Most of the papers that were used to conduct the literature review on BPM are dated from 2018 until 2011. The remaining literature dates back to the year 1993 (Figure 6 Number of Articles by Date for BPM).

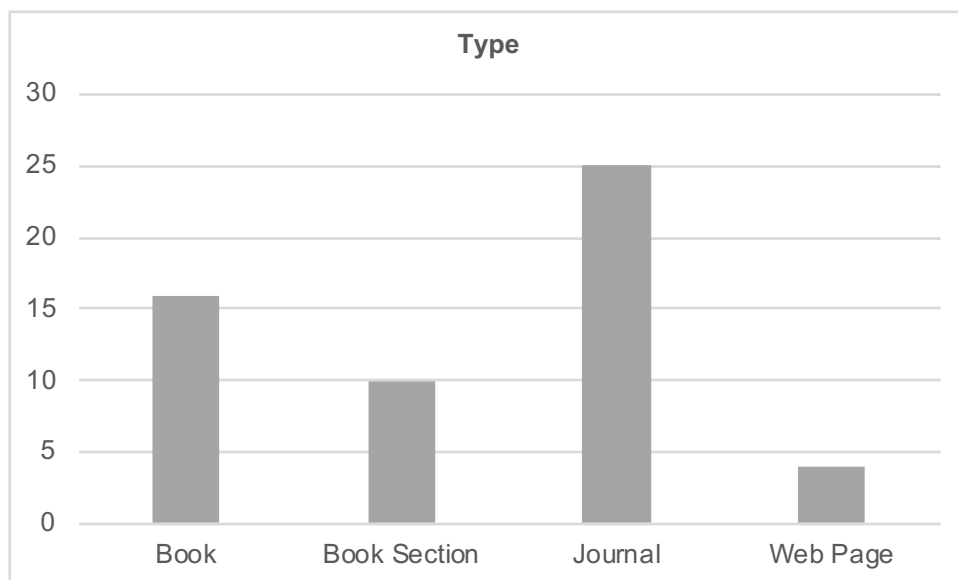
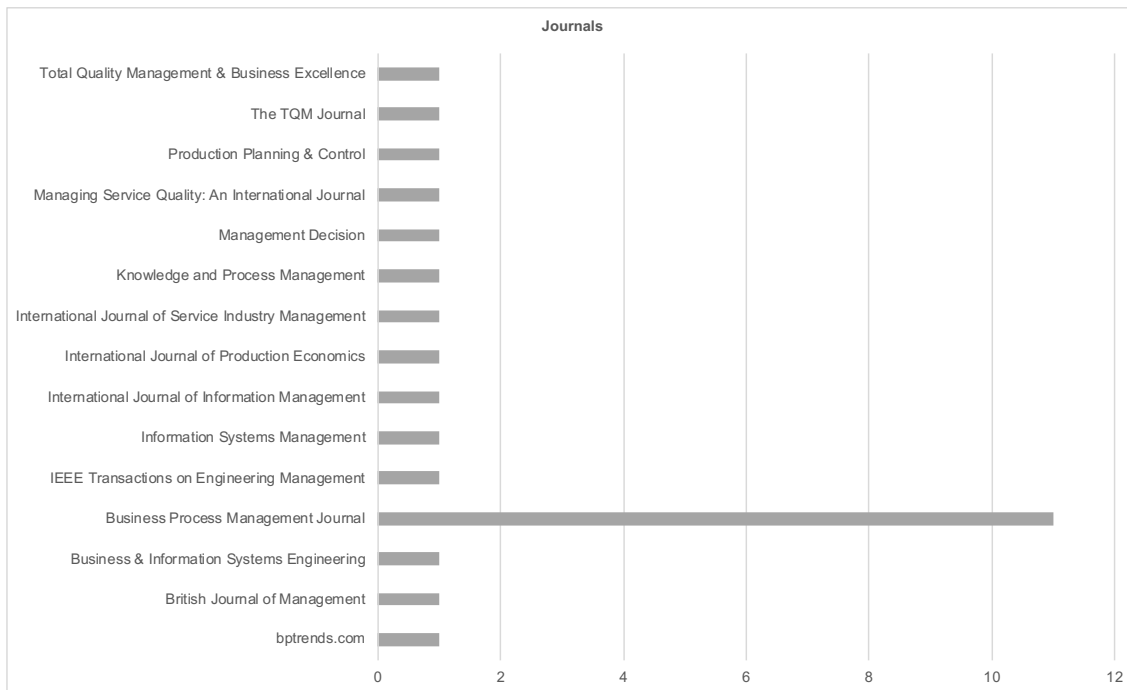


Figure 7 Number of Articles by Type for BPM

A total amount of 25 papers came from journals, 16 from books, 10 from single book sections, and 4 papers came from web pages (Figure 7 Number of Articles by Type for BPM). A more detailed list of the different journals that were used can be found in Figure 8.



*Figure 8 Number of Articles by Journal for BPM*

In contrast to the literature on corporate sustainability, the literature on business process management was not further analysed regarding the method or theory that was used in the respective papers, since the foundation of this thesis lies on corporate sustainability.

### **2.1.2 Theory in Corporate Sustainability**

This section deals with different theories used in the context of corporate sustainability. Theory represents a core element of scientific work. Even before conducting empirical research, the process is shaped by theory, since it allows the researcher to make predictions and assumptions about the nature and the possible outcome of the research (Colquitt and Zapata-Phelan, 2007). Theory also has a significant impact on the interpretation of both literature and the research results (Tranfield et al., 2003).

Before a more in-depth description of theories and their use in corporate sustainability is going to be presented, the general assessment of the literature on theory in corporate sustainability will be highlighted in the following.

Twenty-nine papers could be assigned to at least one definite theory. Some articles carried multiple theories. In twenty cases no theory was mentioned.

In 38 of the 87 articles used for the literature review on corporate sustainability an analysis based on theory was not applicable. In these cases, a clear theory could not be assigned. This was the case, for example, with journalistic papers, web pages, certain books, to name a few (Figure 9 Number of Articles by Existence of Theory).

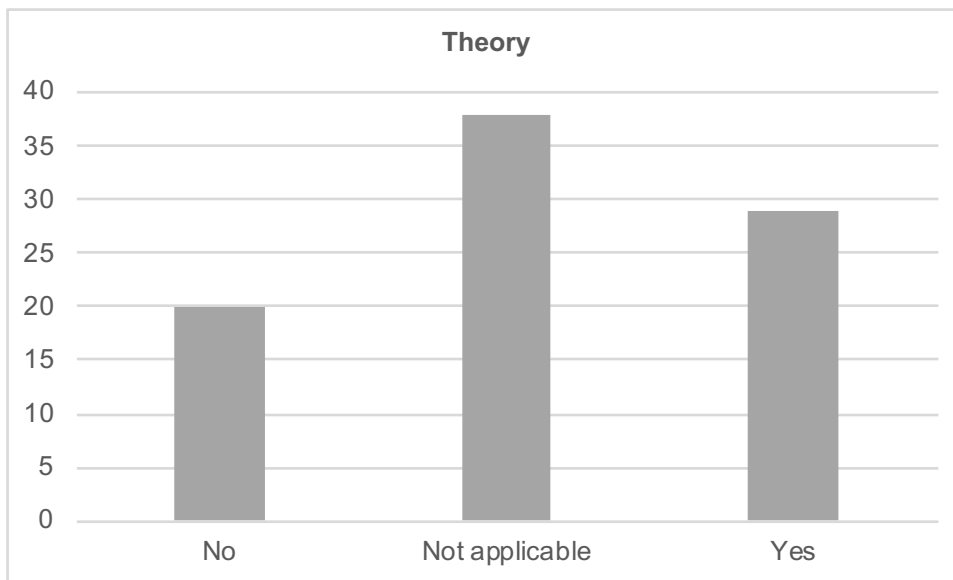


Figure 9 Number of Articles by Existence of Theory

In 29 papers or either one or multiple theories were used explicitly. This explains why the total number of articles by type of theory amounts to 40. This can be attributed to the use of multiple theories in certain papers. In more than two thirds of the cases in which at least a single theory could be assigned, management theory, stakeholder theory, or organisational theory were used in declining order. A more detailed distribution of theories can be found in Figure 10.

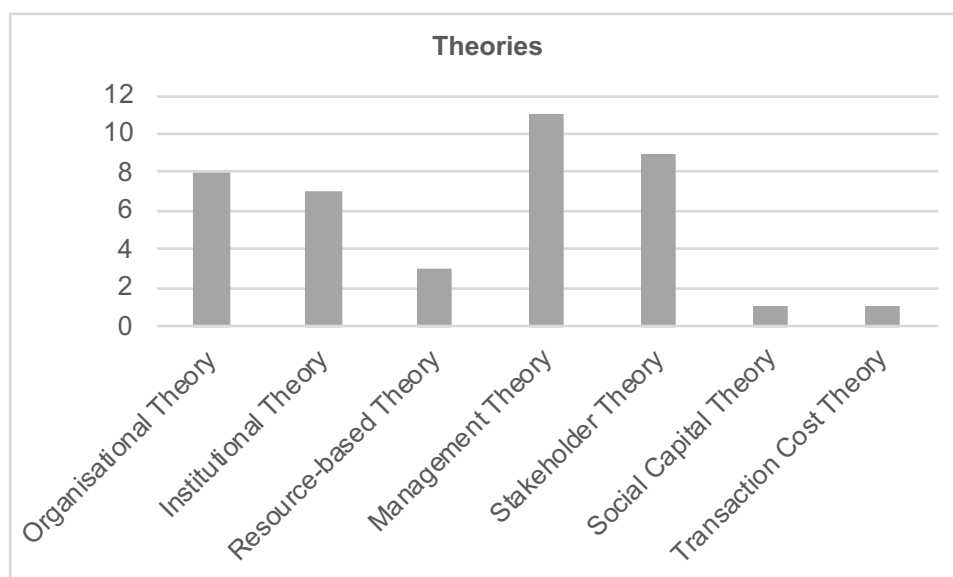


Figure 10 Number of Articles by Type of Theory

Swarnapali conducted a structured literature review on corporate sustainability in 2017 and defined more specifically on which theoretical backgrounds corporate sustainability is based. 50 articles, published between 2002 and 2016, were analysed. Included were articles from journals related to accounting, business and management (Swarnapali, 2017). This literature review is the most recent one that explicitly deals with theory in corporate sustainability. She stated that in this particular research field two types of studies can be found. One is not based on any theory, the other is based on certain theories. Several theories can be found in the literature about corporate sustainability. According to Swarnapali (2017) only the following theories can be found in literature regarding corporate sustainability: institutional theory, agency theory, legitimacy theory, signaling theory, stakeholder theory, resource-based view.

The literature review conducted for this thesis showed that in contrast to Swarnapali's work, agency theory, the legitimacy theory, and the signaling theory do not seem to play an important role in the field of corporate sustainability. These particular theories could not be found in the conducted literature review. However institutional theory, stakeholder theory and resource-based view play an important role. These different theories will be described in the following.

#### *Resource-based Theory*

The resource-based theory represents a very impactful and the most influential theory in management theorizing (Barney et al., 2011, Kraaijenbrink et al., 2010). According to this theory the foundation for a sustainable competitive advantage is resources that have the following characteristics: valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991).



These resources are divided into three categories: physical capital resources, human capital resources, and organizational capital resources (Barney, 1991).

Bansal (2005) deduces from the resource-based view theory that the performance of an organization is influenced by corporate sustainability since it is able to point out new resource-based opportunities.

In order to generate a competitive advantage firms have to implement “strategies that exploit their internal strengths, through responding to environmental opportunities, while neutralizing external threats and avoiding internal weaknesses” (Barney, 1991, p. 99). Beside the fact that the resource-based theory does not solely focus on profit motives it gives companies a sustained advantage over their competitors by giving priority to a company’s own actions rather than concentrating on its environment (Barney et al., 2011, Hart and Dowell, 2011). Furthermore the resources-based theory puts both resources and capabilities of a company at the basis of competitive advantage (Hart and Dowell, 2011).

Over the past year the resource-based view has developed into the resource-based theory by reaching a certain level of maturity. Nonetheless it is still based on the concept of Barney from 1991 (Kraaijenbrink et al., 2010). This point exactly is criticized by Priem and Butler (2001) as well as Kraaijenbrink et al. (2010) since there has not been any substantial definitional work over the past decade and thus the resource-based view has failed to make progress over the course of time. Barney et al. (2011) responded to the criticism by stating that through its change from being a view to becoming a theory, by serving as the groundwork for other perspectives like the knowledge-based view, the natural-resource based view, or dynamic capabilities, and being integrated with other theories such as

the institutional theory and organizational economics their work has reached the necessary level of maturity.

#### *Natural Resource-Based View*

The increased significance of sustainability makes the natural resource-based view stronger and more relevant (Hart and Dowell, 2011).

The resource-based view theory provides the basis for the natural resource-based view (NRBV). As stated by Hart (1995) a company's strategy and competitive advantage are based on the competence to operate in an environmentally sustainable economic manner. It aims to incorporate the natural environment into its strategy. The NRBV includes three strategic capability areas: pollution prevention, product stewardship, and sustainable development. All of these contain an environmental driving force and thus the NRBV can be directly linked to corporate sustainability.

In recent years the focus of research on the natural-resource-based view was on the link between pollution prevention and firm profitability (Hart and Dowell, 2011). Further there seems to be no academic literature on the link between sustainable development strategies and firm performance (Hart and Dowell, 2011). The aim of future research in the area of NRBV should focus on identifying key resources and the link between resources and capabilities, and on the links between environmental and financial performance (Hart and Dowell, 2011).

#### *Institutional Theory*

A theory that focusses on the interaction with the social environment rather than strategic management but still found in literature on corporate sustainability is the institutional theory. It states that organizational change is a response to the social environment (DiMaggio and Powell, 1983, Bansal, 2005). According to

Vermeulen and Witjes (2016) a productive relationship with its social environment is an inherent part of a company's value. They go even further by stating that: "The reason for existence of companies is that they satisfy certain needs of individuals or groups in society by creating and selling certain products or services" (Vermeulen and Witjes, 2016, p. 2824). According to the institutional theory, political influence, society's expectations, and environmental regulations are reasons for organizational change. All three of these are closely linked to corporate sustainability since they represent strong drivers in this field. The institutional theory also helps to establish sustainability within organisations by arguing that parts of corporate sustainability have to be institutionalized (Bansal, 2005, DiMaggio and Powell, 1983).

### *Stakeholder Theory*

The interconnection between an organisation and its social environment is focus of the stakeholder theory. This theory argues that the long-term success of a company relies on the ability of managers to understand the demands of its stakeholders and to develop objectives that are based on these demands. Additionally the management has to explore the relationship with the stakeholders to develop new business strategies as well as to create new opportunities (Freeman and McVea, 2001). The stakeholder approach grew out of management practices, where the stakeholders developed from stockholders to anyone that is influenced or has an influence on the achievement of goals of a firm (Freeman and McVea, 2001).

A central tool for the identification of the stakeholder demands is stakeholder analysis, which is also often used in the context of corporate sustainability. "Stakeholder analysis can be defined as a holistic approach or procedure for gaining an understanding of a system, and assessing the impact of changes to

that system, by means of identifying the key actors or stakeholders and assessing their respective interests in the system” (Grimble and Wellard, 1997, p. 175). Companies use this tool to identify interests of their stakeholders, to be able to consider them within their corporate strategy, as well as to identify the interests of their stakeholders regarding sustainability. The collected issues are evaluated by the companies with the help of a materiality matrix, to identify the most relevant (Bellantuono et al., 2016). Bellantuono et al. (2016) present a materiality matrix designed for this purpose. Within this matrix “any aspect has to be characterized in terms of ‘significance of economic, environmental, and social impacts’ (x-axis) and ‘influence on stakeholder assessments and decisions’ (y- axis)” (Bellantuono et al., 2016, p. 379). Both tools help companies to identify the areas of main interest of their stakeholders regarding sustainability.

Wilson (2003) argues that the stakeholder theory provides the business arguments for corporate sustainability. This is justified by the fact that companies that work towards sustainability strengthen their relationship with stakeholders and hence will be able to meet their business objectives.

Consequently, the stakeholder theory is an essential part within research regarding the motivation and the development of a business strategy for corporate sustainability.

### *Organisational Theory*

The aforementioned theories are dealing with the relationship of a company and the environment in which it operates, to a high degree. In contrast to that, the organisational theory focusses on the company itself rather than its environment. It relies on the fact that an organisational system is made up of rules, hierarchies and procedures that enable an organisation to be active in a way that is congruent

with its goals, established in the vision statement (Witjes et al., 2018). A company's business model has to be in line with the demands of stakeholders (Witjes and Lozano, 2016). In order to integrate corporate sustainability successfully, the business model has to be reworked on the technological, social, and organisational level (Witjes and Lozano, 2016).

### *Management Theory*

Gladwin et al. (1995) describe management theory and its connection with sustainable development. They state that research in management theory has a fundamental question to answer: "how do we wish to live and what is the role of organizations in such living?" (Gladwin et al., 1995, p. 875). In the beginning of management theory, the organisation itself was separated from the environment around it. To be able to apply management theory to sustainable development it is necessary that organisations and the community, in the sense of social and environmental, need to be reintegrated. Furthermore a shift in paradigms is required, organisations have to shift from growth to development – "organizations cannot grow indefinitely, but they can develop indefinitely" (Gladwin et al., 1995, p. 897).

Gladwin et al. (1995) suggest three transformations of management theory to be aligned with sustainability matters. The first transformation is the "agency to communion": it is necessary to question the purpose of a firm. The second transformation is "exterior to interior"; research about sustainability needs to be subjective not objective, therefore an exterior shift in thinking is necessary, referring to the environment of a corporation, and accordingly an interior shift of thinking, referring to the thinking of corporations. This way an organisation will be able to meet the needs of a sustainable world. The last transformation is the concept of implementation. It describes the need for greater attention towards

issues regarding transformational change and operationalisation of sustainability. Sustainable behaviour needs to become a competitive advantage (Gladwin et al., 1995). Engert et al. (2016) propose that the management theory suggests corporate sustainability integration on the normative, strategic and operational level. Normative deals with ensuring and enhancing legitimacy, strategic with the consideration of sustainability within long-term objectives, and the operational level deals with the efficient implementation. At this point the main research area of this thesis is linked, since its focus is upon the strategic and management integration of corporate sustainability.

Furthermore Engert et al. (2016) describe management theory as a basis for the integration of corporate sustainability into strategic management. A result of their research is that managers still fail to consider strategic management in connection with corporate sustainability and they still need an approach for considering the integration of corporate sustainability and strategic management.

In general it can be stated that corporate sustainability is linked to different disciplinary backgrounds (Vermeulen and Witjes, 2016). Linnenluecke et al. (2009) state that individuals have four different understandings of corporate sustainability and that they are based on different theoretical groundings. The first understanding is that corporate sustainability means that a corporation is working towards a long-term economic performance. This view is certainly grounded on the management theory (Linnenluecke et al., 2009). However there has been a development within the management theory that economic sustainability alone is not enough for overall sustainability of a corporation (Gladwin et al., 1995). A different understanding of corporate sustainability is that a corporation is working towards positive outcomes for the natural environment, which is mainly based on the institutional theory. Corporate sustainability can also be understood as the

engagement of a corporation in supporting people and ensuring positive social outcomes. This understanding is based on the institutional and on the stakeholder theory (Linnenluecke et al., 2009). The fourth view, and probably the one that should be considered most, is that corporate sustainability describes a corporation with a holistic approach representing an integration of the other three perspectives (Linnenluecke et al., 2009). Accordingly, a holistic view on corporate sustainability is based on more than just one theory. Further it means that the theory relevant for a specific research depends on the purpose of the research.

Reasoning for corporate sustainability starts from a perspective of stakeholder engagement (Vermeulen and Witjes, 2016). Therefore stakeholder theory builds a strong argument why companies should engage and work towards sustainability goals (Wilson, 2003). Beside stakeholder theory, resource-based theory, as well as natural resource-based view, form the grounding for corporate sustainability. They can be used on research regarding drivers, reasons and motivation for corporate sustainability. Of course, these theories have influence on all relevant research in the area of corporate sustainability, since it starts with an argument “why” research on corporate sustainability is important most of the time. After considering the “why” for corporate sustainability the “how” forms the next step. The “how” focuses on the corporation itself; accordingly, further theories are relevant for this area. Business models need to be aligned with stakeholder demands, internal as well as external (Witjes and Lozano, 2016). Here, corporate sustainability is linked with the organizational theory and the stakeholder theory. Further, corporate sustainability makes continuous improvement and adjustment of the business model necessary. This represents one of the major connections with the organizational theory (Witjes and Lozano, 2016). The implementation of corporate sustainability is connected with

management theory (Vermeulen and Witjes, 2016). Management theory is the basis for operationalization and measurement of sustainability (Gladwin et al., 1995). Accordingly, this thesis is mainly based on management theory, without neglecting the influence of the other theories displayed above.

### **2.1.3 Historical Development of the term Corporate Sustainability**

In 1972 with the Club of Rome and Dennis Meadows, who published the book "The Limits of Growth", the term 'sustainability' entered public and political discussion (König and Thema, 2011). Meadows et al. (1974) describe what will happen if the growth trends continue unchanged: a decline in both population and industrial capacity. Based on these findings they emphasized the importance of establishing a condition of ecological and economic stability to be sustainable (Meadows et al., 1974). The United Nations Conference on Environmental Protection in Stockholm, which was held for the first time in the same year, marks the start of a global environmental policy. The most important result of the Stockholm conference was the initialization of the United Nations Environmental Program, with the aim of creating a global awareness of ecology at all levels (Pfeiffer, 2009).

In the 1980s the term sustainability finally reached broad geopolitical and public attention. The World Commission on Environment and Development (WCED), founded in 1983, started to change the consciousness of society. Four years later, under the chairmanship of Norwegian Prime Minister Gro Harlem Brundtland, the report "Our Common Future", better known as the Brundtland report, was published (WCED, 1987). For the first time, a vision of sustainable development was written. "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 41). The Brundtland report linked various



developments, which had until then only been discussed in isolation, including population growth, economic and social imbalances, poverty, environmental degradation, and the overuse of natural resources (Weiland, 2007). This makes it clear that environmental and development policies are mutually connected and should therefore be considered together.

The connection between development and ecology was discussed and further developed in the following years at many conferences. In this context, the most important conference, the United Nations Conference on Environment and Development (UNCED), was held in Rio de Janeiro in 1992, also known as the Earth Summit. The conference was an important step in the process of sustainable development. In particular, major global issues such as high CO<sub>2</sub> emissions, environmental poisoning from many factories' chemicals, fossil fuels and water scarcity were discussed (Vaduva et al., 2017). The United Nations Conference on Environment and Development started to strengthen the role of businesses and industry when trying to achieve the goal of sustainability, with its Agenda 21 from 1992 (United Nations Division for Sustainable Development, 1992). This agenda sees businesses and industry as relevant participants in the process, because they are responsible for increasing prosperity, trade, employment and therefore the likelihood of opportunities. The defined goal for businesses and industry is to minimize their impact on human health and the environment (United Nations Division for Sustainable Development, 1992).

Although the basic points of the Agenda 21 were merely a framework and thus only a few implementation measures could be derived, the concept of sustainable development emerged. The Agenda 21 had a positive effect on many non-governmental organizations (NGOs) and companies that promoted the explicit implementation of sustainable action (Steinmann, 1998).

To monitor the implementation of the agreed Agenda 21 objectives, in 1994 the United Nations established the Commission on Sustainable Development (CSD). The CSD deals with individual chapters of the lead paper in annual meetings, to oversee and coordinate the implementation of the results (Wilkins, 2008). Following vague formulations of the Rio conference, a series of follow-up conferences such as the World Population Conference in 1994, the 1995 World Social Summit and the second Rio + 5 Earth Summit in 1997 took place.

The Kyoto climate summit, in 1997, brought the breakthrough for international development and environmental policy. With the so-called Kyoto Protocol, legally binding targets for the reduction of CO<sub>2</sub> emissions for industrialized countries were passed for the first time. The Kyoto Protocol made climate protection a core element of sustainable development. In concrete terms, states had to undertake certain measures to reduce their greenhouse gas emissions by at least five percent by the end of 2012, starting in 2008, compared to the levels of 1990 (Steger et al., 2002).

The third Rio + 10 World Summit on Sustainable Development took place in Johannesburg in 2002. At this follow-up conference of Rio, an implementation plan was adopted, which among other things included new specifications and measures for environmental protection and poverty reduction (König and Thema, 2011). The most important event for sustainability and climate protection in the recent past was the 2015 United Nations Climate Change Conference in Paris. More than 190 countries agreed on a new climate agreement and pledged to make their contribution to climate protection. Global warming should be kept well below two degrees, global net greenhouse gas emissions should be reduced to zero, and national climate targets reviewed every five years (United Nations, 2015). In addition, the treaty supports the idea of the Brundtland report that

prosperity, development, and the fight against poverty on the one hand, and climate and environmental protection on the other hand, are not mutually exclusive but closely linked (Endres, 2015).

#### **2.1.4 Definition of Corporate Sustainability**

The historical review suggests that the term sustainability is extremely complex and multi-layered. The definition of corporate sustainability is a widely discussed topic and it seems that there is not just one answer to this question.

While sustainability was first and foremost a political model, in the course of time it has also developed into an economic and ecological model that increasingly places companies under pressure to adapt (Bieker, 2001). When looking at the definitions of sustainability overlaps can be detected. As a rule, the continued existence of a system should be ensured in the short and long term (Klauer, 1999). This system can be an eco-system, but also a company or a private household, for example (Krcal, 2003). Elkington defined a sustainable corporation as one that “in the most general terms would not only conserve and use nature and natural resources for the benefit of present and future generations, but also respect a range of human rights – including the right to a clean, safe environment – in the process. And it would contribute to progress against a range of new human welfare indicators which are currently still in development” (Elkington, 1999, p. 94). Part of this definition is the triple bottom line (TBL), which consists of the economic bottom line, the environmental bottom line, and the social bottom line. The TBL is a concept that is widely accepted (Amini et al., 2018), and research is still based on it, e.g. Formentini and Taticchi (2016), Garcia et al. (2016), Palmer and Flanagan (2016), Svensson et al. (2016).

In 2018 Elkington stated that even though the TBL has been widely accepted as a basis for the development of corporate sustainability, most companies still lack the understanding that it is necessary to meet at least two of the bottom lines (Elkington, 2018). Elkington criticises companies for using TBL as an accountant's tool with a focus only on profit targets, neglecting its ecological and social aspects (Elkington, 2018). Frecè and Harder (2018) support these findings with their study that includes 50 Swiss companies. They point out that companies base decisions first and foremost on financial guiding principles since these are very well established. Thus far guiding principles for social and environmental developments are still lacking (Frecè and Harder, 2018). Furthermore Hahn et al. (2014) mention that companies often do not pursue the ecological and social dimension because of existing tensions with their financial benefits. They refer to measures required by the social or ecological view of sustainability that cost money but cannot be directly linked to financial benefits, for example the substitution of material. The TBL fails to address the relationship between each of the bottom lines systematically (Hahn et al., 2014). Elkington (2018) calls for a new business culture where businesses do not claim to be sustainable by simply giving out TBL reports but instead follow at least two, if not all three bottom lines (Elkington, 2018).

Pufé describes the necessary interaction of the three aspects in his definition: "Sustainability means not to generate profits, which then flow into environmental and social projects, but to generate profits in an environmentally and socially acceptable way" (Pufé, 2014, p. 31).

As a first finding the three dimensions function as the basic principles of corporate sustainability. However, a systematic approach to integrate all of them equally is still missing.

Although the TBL is being criticised, it still provides the backbone for corporate sustainability (Swarnapali, 2017). Therefore, each of the three bottom lines will be presented in more detail in the following.

### **Economic Bottom Line:**

Adam Smith stated in 1776 that the main target of all business activities is to generate profit (Smith, 1776). Businessmen care about profit and not about the well-being of the society in first instance (Smith, 1776). Karl Marx systematically analysed business activities in his book “Das Kapital” from 1867 and criticised these. He describes business activities as the transformation of money into products and back. The main target is to make more money out of money through this transformation (Marx, 1867), which is also the main point of Marx’s criticism. Nowadays business success is still defined as the generation of profit (Hutzschenreuter, 2015) or the creation of shareholder value, respectively (Nguyen and Slater, 2010). It means to increase the value of the company, and above all to improve the financial situation of the shareholders (Schneck, 1994). "Economically sustainable companies guarantee at any time cash flow sufficient to ensure liquidity while producing a persistent above average return to their shareholders" (Dyllick and Hockerts, 2002, p. 133).

The interesting point in the context of sustainability, is that the shareholder value as the main target means that all business activities are focused on the interests of the shareholders and not on the interests of all stakeholders (Schneck, 1994), such as customers or employees.

### **Environmental Bottom Line:**

"Ecologically sustainable companies use only natural resources that are consumed at a rate below the natural reproduction, or at a rate below the

development of substitutes. They do not cause emissions that accumulate in the environment at a rate beyond the capacity of the natural system to absorb and assimilate these emissions. Finally they do not engage in activity that degrades eco-system services" (Dyllick and Hockerts, 2002, p. 133). Hence the natural capital and its usage is a central element of the environmental bottom line (Bansal, 2005, Baumgartner and Ebner, 2010, Isaksson, 2006, Robinson et al., 2006). Natural capital, which is relevant for the environmental bottom line is subdivided into critical natural capital, renewable and replaceable, or substitutable natural capital. The critical capital is resources that are limited, for example mineral oil. Renewable capital is resources that grow again, for example trees, and replaceable capital is resources that can be substituted by other resources or artificially (Elkington, 1999).

#### **Social Bottom Line:**

"Socially sustainable companies add value to the communities within which they operate by increasing the human capital of individual partners as well as furthering the social capital of these communities. They manage social capital in such a way that stakeholders can understand its motivation and can broadly agree with the company's value system" (Dyllick and Hockerts, 2002, p. 134).

It includes commitment to diversity, fair compensation, a safe and healthy workplace, fair dealings with suppliers, selection of suppliers that adhere to the principles of CSR, and engagement with governments and communities in which the business operates to improve the quality of life. The difficulty of social sustainability is that the relationship between it and the financial performance has not been examined (Nguyen and Slater, 2010).

The social bottom line is about the present and future relationships with stakeholders (Baumgartner and Ebner, 2010). Nevertheless, different indicators for the measurement of the social bottom line have been defined in literature. They are divided into internal and external indicators. The Global Reporting Initiative divides the indicators into Labour Practices and Decent Work, Human Rights, Society, and Product Responsibility. Examples for indicators for the social bottom line are: corporate governance, health and safety, diversity and equal opportunity, human rights and corporate citizenship (Global Reporting Initiative, 2015, Baumgartner and Ebner, 2010).

The definition of the triple bottom line is very important, like the definition of sustainability from the WCED, because nearly all of the following research in this area is based on it (Dyllick and Hockerts, 2002, Fistic et al., 2014, Gao and Zhang, 2006, Vermeulen and Witjes, 2016). In recent years it has been emphasized in the literature that corporate sustainability is about meeting the needs of all relevant stakeholder groups in the present and in the future (Dyllick and Hockerts, 2002) and about the integration of short and long-term aspects (Dyllick and Hockerts, 2002, Gao and Zhang, 2006).

Organizations tend to overemphasize the short-term aspects, which is in conflict with sustainability. What Dyllick and Hockerts (2002) add to the understanding of corporate sustainability is the application of sustainability to the business context. If an organization wants to be economically sustainable, a positive cash flow is necessary to ensure liquidity and a profit for their shareholders. The ecological sustainability is about careful and sustainable consumption of natural resources. Dyllick and Hockerts (2002) have also further developed the social bottom line of John Elkington; socially sustainable companies add value to their communities. Until now, corporate sustainability has been defined as a way of behaviour of

businesses. This is not enough. Corporate sustainability is a completely new management paradigm. “Corporate sustainability is a new and evolving management paradigm. Although the concept acknowledges the need for profitability, it differs from the traditional growth and profit-maximization model in that it places a much greater emphasis on environmental, social, and economic performance, and the public reporting on this performance” (Wilson, 2003, p. 5).

Most of the definitions for corporate sustainability go back to the definition from the WCED and to Elkington’s definition (Palmer and Flanagan, 2016). However, over time some additional factors have been added. For example that a holistic and simultaneous integration of all parts of sustainability into the organization, its management, its processes, practices, products, and services is a necessary part of corporate sustainability (Bansal, 2005, Dyllick and Hockerts, 2002, Oertwig et al., 2017).

In a literature review Swarnapali (2017) found that a definition of sustainability that is commonly agreed on is still missing and that “different approaches have been used to define, measure and theorize corporate sustainability”.

Frecè and Harder (2018) mention that within companies a common definition for sustainability is still missing, and they claim that thus “sustainable development activities are subsequently not based on a sound theoretical foundation” (p. 184). Most companies base their work in context of sustainability on the Brundtland Report and the Sustainable Development Goals of the United Nations which however are not suitable for the business context. They argue that the Brundtland Report as well as the Sustainable Development Goals of the United Nations are too general and need to be adjusted to the business context, since they focus on human needs and the “long-term shaping of the human existence” (Frecè and Harder, 2018, p. 191). They “propose a value-based definition of corporate



sustainability that can act as guiding principles for sustainability policies to define activities that aim to retribute and compensate” (Frecè and Harder, 2018, p. 191).

Based on the latest findings of Frecè and Harder (2018) the foundation for corporate sustainability will be defined below. This can only serve as a basis, since an explicit definition has to be customised to each company’s individual specifics (Vermeulen and Witjes, 2016, Frecè and Harder, 2018).

### **Definition of Corporate Sustainability**

Sustainable companies need to be economically successful and they have to meet the needs of their stakeholders in the present and in the future. Simultaneously they have to be socially and ecologically responsible. They have to at least reduce or at best reverse detrimental effects that are caused by their activities. Any negative effect on economic, social and natural environment that cannot be reversed has to be compensated. Short term financial goals should not be superior to a company’s long term ecological and social footprint.

### **2.1.5 Integration of Corporate Sustainability**

This section looks at the reasons why companies integrate corporate sustainability, the barriers they experience, and the existing tools that can be applied. Finally, existing approaches will be evaluated.

#### *2.1.5.1 Reasons for the Integration of Corporate Sustainability*

One reason for companies to become sustainable, is its positive impact on the short- and long-term value of a company (Bonini and Görner, 2011). Other advantages can be a reduction of costs, improved market access, improved public profile and image (Robinson et al., 2006). Epstein and Roy (2001) also name an improved stakeholder relationship as benefits for companies through sustainability actions. These can, for example, lead to a cost reduction within the

value chain and if these savings are passed on to the customer, they may be loyal and make purchases over the long-term, in return. An increase of employees' satisfaction will as well be a result of sustainability activities. Social sustainability focuses on the employee rights as well as on safety and health issues of employees. Further employees seem to be more reliable, due to an improved corporate reputation. Accordingly, shareholders will provide capital over the long-term. The organisations themselves have also already recognized that sustainability is quite important. In a survey from 2015, the most common reason for sustainability activities is that it is a factor for success, because it is a social expectation (Loepp and Betz, 2015). If an organisation does not consider integrating sustainability principles into their strategy and achieve corporate sustainability, the consequence could be a loss of competitive advantage and business opportunities (Robinson et al., 2006). Sustainability appears to be critical to the long-term competitiveness of companies, it can be one of the competitive differentiators and important for the long-term profitability of companies (Epstein and Roy, 2003, Lubin and Esty, 2010, Savitz, 2006).

Sustainability is nearing a tipping point considering its importance to companies, because companies are beginning to recognize a positive influence on the financial performance through sustainability (Kiron et al., 2012). Managers are taking sustainability more seriously. A survey from 2012 showed that 70% of the respondents have had sustainability on their management agenda for the past six years (Kiron et al., 2012). This development is also supported by a survey from 2014, which showed that high sustainability firms outperform low sustainability firms. High sustainability companies are those that have integrated sustainability on strategic and operational levels. To decide whether it is a high or low sustainability organisation, aspects like the environment, the employees,

the community, and the products are considered (Eccles et al., 2014). A survey from 2015 showed that businesses started to address sustainability issues effectively and that corporate sustainability has changed towards a strategic and transformational initiative that engages multiple entities. Businesses start to see the business case for sustainability; only 23% of the respondents do not have a business case for sustainability (Kiron et al., 2015).

Meanwhile a social development is ongoing. Savitz speaks about the “Age of Accountability”. Through for example the Internet and Social Media, everybody has detailed information about operations of a business and people have an opinion about them, which they express and use to change the behaviour of companies. Sustainability is not an option anymore, it is a necessity (Savitz, 2006).

However, the literature review shows that a sustainable approach to running a company and to doing business is still closely linked to economic success. There is no significant amount of companies that act in a social and ecological manner without putting their main focus on making a reasonable profit. However, it is becoming less attractive for companies to neglect ecological and social aspects and to focus on financial success only. Companies that deny the importance of those two dimensions are going to continue to lose connection to companies that are integrating all three dimensions into their actions. Accordingly, a finding of the literature review is the lack of explicit reasons for corporate sustainability that are not directly linked to financial success.

#### *2.1.5.2 Barriers to Integration*

Companies still have difficulties with integration, for example insufficient data or information to implement initiatives, lack of integration in the performance management system, lack of engagement of some business units and a lack of

the right capabilities and skills (Kiron et al., 2012). Another problem of sustainability is that companies struggle to see the connection between their sustainability efforts and the financial performance of the company - and financial performance is usually the reason for the company's existence. This explicit problem is picked up by Elkington (2018) in his criticism of companies that only put their efforts in meeting the economic bottom line.

The most named obstacles are competing priorities, insufficient resources, and a lack of frameworks to incorporate sustainability into the core business (Kiron et al., 2015, Loepp and Betz, 2015). The frameworks that do exist have not been validated sufficiently and are mostly based on a theoretical foundation.

As shown above companies still struggle with the integration of sustainability and research still does not offer tools to identify and attain goals that contribute significantly to sustainable development (Baumgartner and Rauter, 2017). Accordingly, the aim of this thesis is to develop a framework that supports the integration of sustainability into the business process management, which is a management tool that is part of strategic management as well as part of operations management.

#### *2.1.5.3 General aspects of the Integration of Corporate Sustainability*

“The integration of CS into the organisational system entails a continuous adjustment of the internal organisation to the ever-changing stakeholder requirements [...] and, therefore, constitutes the interventions made to internal processes, structure, and management control of the organisational system in order to comply with an established corporate vision on CS” (Witjes et al., 2018, p. 582).

In 2011, McKinsey conducted a survey that showed that companies do not have a choice whether they should be engaged in obtaining sustainability. They can only decide whether they see it as a duty or if they want to see it as a chance to increase their corporate value, while increasing the value they create for society (Bonini and Görner, 2011). An increasing number of companies have started to manage sustainability; they have tried to integrate the goals in different processes, such as the mission and values, the external communication or the corporate culture, while however still struggling with integrating sustainability into areas like supply chain or budget (Bonini and Görner, 2011). This survey includes 3203 executives across different company sizes and industries. While there is no data on the exact number of employees of these companies or the distribution of countries or branches of industry, it does provide a good overview of the overall approach to integrate sustainability. But it is hard to really put this into context because the above mentioned data was not published.

In general, there are two types of strategies to become sustainable that are described in literature: first, the elimination of the negative effects on the environment and on society and second the responsibility to positively contribute to the goals of sustainable development (Baumgartner, 2009). Progress has to be reported and the performance needs to be monitored (AccountAbility, 2008, Baumgartner, 2014, Eccles et al., 2012). However, no comprehensive study on this topic could be found in literature. Studies are either limited to certain branches of industries, to certain countries or the studies lack precise information on the industry branches, company sizes or geographic location.

Beside the definition and development of a strategy, it is necessary to have the leadership and employee commitment to become successful as a sustainable corporation (AccountAbility, 2008, Eccles et al., 2012). Baumgartner (2009) did a

lot of research in the area of corporate culture in corporate sustainability. "If aspects of sustainable development are not part of the mind-set of leaders and members of the organisation, corporate sustainability activities will not affect the core business efficiently and are more likely to fail" (Baumgartner, 2009, p. 102). The organisational culture has to change in order to have a successful sustainability strategy in the long-run. Even though it is reasonable to assume that corporate culture and sustainability are closely linked, Baumgartner presents only one case study that is limited to one corporation in the mining industry. His assumptions have not been tested on a larger scale.

The extent of integration depends on the ambition level of the organisation. The ambition level itself depends on the organisation's existing value system and the external trends and circumstances (Baumgartner, 2009, Marrewijk and Werre, 2003). Marrewijk and Werre (2003) developed a matrix that helps the organisation to define their ambition level. Different indicators are used for the definition: the motivation behind corporate sustainability, the decision-making process and the organisation's relationship to stakeholders and society. When the organisation has defined its ambition level, it is possible to create an enterprise wide vision and the organisation's strategy. Even though this matrix tries to find a tailor-made approach for each individual company to define its level of ambition, it has not been tested in practice.

An integration approach should always be built from an inclusive systematic perspective (Vermeulen and Witjes, 2016). The development of an approach is very complex because it always needs to be able to consider the context specifics (Bonini and Görner, 2011), without being too superficial.

#### *2.1.5.4 Tools for Integration*

Several tools exist in literature for the integration of sustainability into an organisation. The published tools differ in their scope, in their perspective on sustainability and in their link with the organisational system. Kuhndt (2004) defines three categories for existing sustainability tools: tools for analysis and evaluation, tools for action and tools for communication. The categories of Kuhndt (2004) for the approaches for the integration of sustainability refer to the steps of the PDCA-cycle. This cycle of Deming (2000) is a well-established process when implementing new goals inside a company. It consists of the four steps: plan, do, check, act. The steps plan and check are represented through the category of tools for analysis and evaluation. The step act and do are represented by the tools for action. The third category of Kuhndt, tools for communication, are an essential part regarding the integration of sustainability, since, on the one hand, the communication of sustainability activities is mandatory for companies due to legal reasons (European Parliament, 2014) and on the other hand the public is increasingly interested in any sustainability efforts of companies. This requires a solid communication. The categorisation of Kuhndt is also referenced by Witjes et al. (2018) and Johnson and Schaltegger (2016).

The three categories of Kuhndt (2004) are described in the following:

- Tools for analysis and evaluation, e.g. tools for the Life-Cycle-Analysis. The measurement of the corporate sustainability performance is the main aim of these tools. They focus on the evaluation of the supply and value chain of a company (Witjes et al., 2018).
- Tools for action, e.g. Environmental Management System like the ISO 14000.

These tools aim to establish the link between the corporate strategy and

the core business activities. They are connected to the operational level of an organisation (Engert et al., 2016).

- Tools for communication, e.g. tools for sustainability reporting like the Sustainability Reporting Guidelines of the Global Reporting Initiative.

In these days modern society is becoming more and more aware of the degree of corporate sustainability of an organisation. Consequently, it is becoming more and more important for companies to find an appropriate way to communicate their sustainability performance. Further the legislation begins to require sustainability reporting (European Parliament, 2014). For this purpose, research provides tools for the communication of sustainability performance. Witjes et al. (2018) state that these tools also support organisations to develop a sustainability strategy.

In the literature review for this thesis, with the above mentioned inclusion and exclusion criteria, the following approaches were found: the “Sustainability Reporting Guidelines” of the Global Reporting Initiative (2015), the “Green Business Process Management” (Recker et al., 2012), the “ISO 14000” (TÜV SÜD Management Service GmbH, 2014), the “EFQM Framework for Sustainability” (EFQM, 2015), the “Sustainability Balanced Scorecard” (Figge et al., 2002), the “Corporate Sustainability Model” of Epstein and Roy (2001) and the framework of Rozman et al. (2015) for the integration of sustainability into business process management. All of the approaches produced by the literature review are shown in Table 2 below.



<i>Approach</i>	<i>Author</i>	<i>Category</i>
EFQM Framework for Sustainability	EFQM (2015)	Tool for action
Corporate Sustainability Model	Epstein, Roy (2001)	Tool for action
Sustainability Balanced Scorecard	Figge et al. (2002)	Tool for action
Integration into the Business Process Management System	Rozman et al. (2015)	Tool for action
ISO 14000	TÜV Süd Management Service GmbH (2014)	Tool for action
Green Business Process Management	Recker et al. (2012)	Tool for analysis & evaluation
Sustainability Reporting Guidelines	Global Reporting Initiative (2015)	Tool for communication

*Table 2 Sustainability Integration Tools*

These approaches will be presented in more detail in the following, due to various reasons.

The Green Business Process Management and the framework for the integration into the Business Process Management System are going to be presented in a separate section, Section 2.1.5.5, since these are the only approaches that are directly connected to the core element of this thesis, the integration of corporate sustainability through BPM. The two named approaches were the only ones that could be found within this literature review.

The ISO 14000 for “tools for action”, and the Sustainability Reporting Guidelines of the Global Reporting Initiative for “tools for communication” will be presented in detail, since they are both explicitly named in current literature as the main representatives of their respective categories (Witjes et al., 2018, Kuhndt, 2004). The literature review showed that no literature exists that deals with specific integration approaches, except for literature that describes the development and presentation of the respective approaches. Exceptions to this are both the ISO 14000 and the Sustainability Reporting Guidelines, since they are both cited and

evaluated explicitly in various sources (Lozano, 2012, Witjes et al., 2018, Fistic et al., 2014, Garcia et al., 2016, Ghose et al., 2010, Isaksson, 2006). Also, the approach of a Sustainability Balanced Scorecard can be found in various sources. It is discussed and also empirically evaluated. This is a strong indication that it is worth looking at this approach in more detail.

The Corporate Sustainability Model of Epstein and Roy (2001) will also be presented in the following, despite it being rarely cited in other literature, owing to the fact that it combines tools for evaluation and analysis and tools for action. It represents the only framework that was found in the literature review that tries to give a general overview of the integration of corporate sustainability. Even though it remains generalistic and fairly superficial, it tries to combine all dimensions of sustainability with the different levels of a company in addition of presenting a business case for sustainability.

Finally, the EFQM Framework for sustainability. This framework will be presented, since it also attempts to connect corporate sustainability and business process management. Since this is not the core of the framework it will not be presented in the separate section.

The literature review showed that there is no comparing or systematic review of the existing integration approaches. An evaluation of the different approaches in comparison, regarding their practicability in real-life use, was not found. This makes it difficult to find explicit and hard arguments for the selection of presented approaches. That is why the author of this thesis decided to present all approaches found in the conducted structured literature review. The closest attempt of a systematic review of existing integration approaches, that was found, are the works of Witjes et al. (2018) and Lozano (2012), which evaluate different categories of tools. They do not evaluate explicit approaches.

Lozano (2012) made an analysis of sixteen sustainability integration initiatives that have been described in literature. He found that most initiatives do not contribute to all three dimensions of sustainability. Concerning parts of the organisational structure of a company, the majority of initiatives focusses on operations and processes as well as management and strategy and to a lesser degree on assessment and communication. According to his analysis it is still not clear how the various elements of a company's system are tackled by these initiatives. It would be necessary for executives to gain a clear understanding of their firm's structure, their competences and the context of their operations to then be able to choose an adequate set of initiatives that address their company's system in its entirety along with all dimensions of sustainability (Lozano, 2012).

The evaluation of existing integration models conducted by Witjes et al. (2018) found that there is still no tool that supports the overall integration of corporate sustainability. They recommend using three types of tools: an environmental management system, a life cycle assessment and sustainability reports. These tools should be used simultaneously to address all integration process elements (Witjes et al., 2018).

### **The ISO 14000**

The ISO 14000 is a "multi-faceted approach to meeting the needs of all stakeholders [...] in the field of the environment" (ISO, 2010, p. 2) It can be implemented in any kind of organisation and helps to proactively manage all environmental issues. Standards for greenhouse gas accounting, verification and emissions trading, and for measuring the carbon footprint of products are defined (ISO, 2010).

Potential economic benefits for the organisation, when implementing the standards, are the reduction of raw material and other resources, the reduction of energy consumption, an improved process efficiency, reduction of waste generation and associated costs and the utilization of recoverable resources (ISO, 2010). It has to be pointed out that these benefits are not guaranteed and that the ISO 14000 certification has to be paid for. Subsequently most of the information that is given out by the TÜV SÜD, comes with a bias, since it is also used for advertising.

The ISO 14000 family includes many standards. The one that defines the environmental management system to manage the impact of the activities on the environment is the ISO 14001 (ISO, 2010). The ISO 14001 is the basis for building up implementation, control, further development and certification of an environmental management system (ISO, 2010). The latest version is ISO 14001:2015 (TÜV SÜD Management Service GmbH, 2014). One issue with the ISO 14000 standard is that it has not been updated in the last four years, which would be necessary to be able to react to the fast-changing subject of sustainability.

The norm helps to protect the environment, to be compliant with all legislation, and to continuously improve (TÜV SÜD Management Service GmbH, 2008). The focus of the ISO 14001 is first of all on environmental aspects regarding the processes, the activities, and the facilities. As well as the documentation of criteria for the importance of environmental aspects and the relation between environmental aspects and goals, programmes and strategy (TÜV SÜD Management Service GmbH, 2014). It is based on the PDCA-cycle, to ensure a continuous improvement of the environmental system (TÜV SÜD Management Service GmbH, 2014). Also, of importance within the ISO 14001 are legislation,

the organisation and responsibilities, the qualification of the employees, and the awareness of environmental issues. Operational control, risk management, monitoring, and evaluation also need to be considered. Internal audits and a management review round off the ISO 14001 (TÜV SÜD Management Service GmbH, 2008). The ISO 14001 certificate proves the existence of an effective environmental management system (Glatzner, 2001). Accordingly, the ISO 14000 is an approach for environmental management. It does not directly consider the other dimensions of sustainability. The approach for environmental management is very detailed and supported by a lot of norms within the ISO 14000 family. This approach is very helpful for the organisation of the environmental management, though it is not an approach to integrate sustainability from a holistic point of view.

### **The Sustainability Reporting Guidelines**

The “Sustainability Reporting Guidelines” of the Global Reporting Initiative (Global Reporting Initiative, 2015) help an organisation to set goals, to measure performance, and to manage its change towards sustainability. A report in accordance with the guidelines conveys the impact of an organisation, positive or negative, on the goals of sustainability in the sense of environment, society, and economy. The guideline offers a table of categories and aspects of corporate sustainability (Table 3).

Category	Economic		Environmental	
Aspects	<ul style="list-style-type: none"><li>• Economic Performance</li><li>• Market Presence</li><li>• Indirect Economic Impacts</li><li>• Procurement Practices</li></ul>		<ul style="list-style-type: none"><li>• Materials</li><li>• Energy</li><li>• Water</li><li>• Biodiversity</li><li>• Emissions</li><li>• Effluents and Waste</li><li>• Products and Services</li><li>• Compliance</li><li>• Transport</li><li>• Overall</li><li>• Supplier Environmental Assessment</li><li>• Environmental Grievance Mechanisms</li></ul>	
Category	Social			
Sub-Categories	Labour Practices and Decent Work	Human Rights	Society	Product Responsibility
Aspects	<ul style="list-style-type: none"><li>• Employment</li><li>• Labour/Management Relations</li><li>• Occupational Health and Safety</li><li>• Training and Education</li><li>• Diversity and Equal Opportunity</li><li>• Equal Remuneration for Women and Men</li><li>• Supplier Assessment for Labour Practices</li><li>• Labour Practices Grievance Mechanisms</li></ul>	<ul style="list-style-type: none"><li>• Investment</li><li>• Non-discrimination</li><li>• Freedom of Association and Collective Bargaining</li><li>• Child Labour</li><li>• Forced or Compulsory Labour</li><li>• Security Practices</li><li>• Indigenous Rights</li><li>• Assessment</li><li>• Supplier Human Rights Assessment</li><li>• Human Rights Grievance Mechanisms</li></ul>	<ul style="list-style-type: none"><li>• Local Communities</li><li>• Anti-corruption</li><li>• Public Policy</li><li>• Anti-competitive Behaviour</li><li>• Compliance</li><li>• Supplier Assessment for Impacts on Society</li><li>• Grievance Mechanisms for Impacts on Society</li></ul>	<ul style="list-style-type: none"><li>• Customer Health and Safety</li><li>• Product and Service Labelling</li><li>• Marketing Communications</li><li>• Customer Privacy</li><li>• Compliance</li></ul>

*Table 3 Categories and Aspects of the G4 Sustainability Reporting Guidelines (Global Reporting Initiative, 2015)*

The guideline also helps organisations to understand and manage the impact of sustainability developments on the strategy and the activities (Global Reporting Initiative, 2015). This guideline is accepted and widely used (United Nations Global Compact, 2014). It is named one of the most important international reporting guideline for sustainability (Simpson, 2018). The main purpose of this guideline is sustainability reporting and not the integration of a sustainability strategy into the company. It helps to identify strengths and weaknesses. By that it supports companies to see the main areas that should be covered in the sustainability strategy. However, the guideline does not give advice how to improve the company's sustainability efforts and how to turn a sustainability

strategy into action. Also, this guideline does not show how to integrate corporate sustainability through business process management. This is further evidence that such an approach is missing.

### **The Corporate Sustainability Model**

The approach focuses “on establishing relationships between company initiatives and corporate profitability as it relates to social and environmental strategies and narrows attention to specific actions and their payoffs” (Epstein and Roy, 2001, p. 588).

To support sustainability actions, it is quite important to see the financial consequences, but also the social consequences (Epstein and Roy, 2001). The developed framework shows the drivers for sustainability and financial performance. The framework can be seen in Figure 11.

The starting point for the framework is the existing corporate strategy. It needs to be analysed whether and how it has impacts on sustainability issues (Epstein and Roy, 2001). For example, if a company plans to reduce its energy costs this could have a positive impact on sustainability if it is going to be reached through an increase of energy efficiency. It also could have a negative impact on sustainability if it is going to be reached by reducing the amount of expensive green electricity. The strategy sets the direction for sustainability actions.

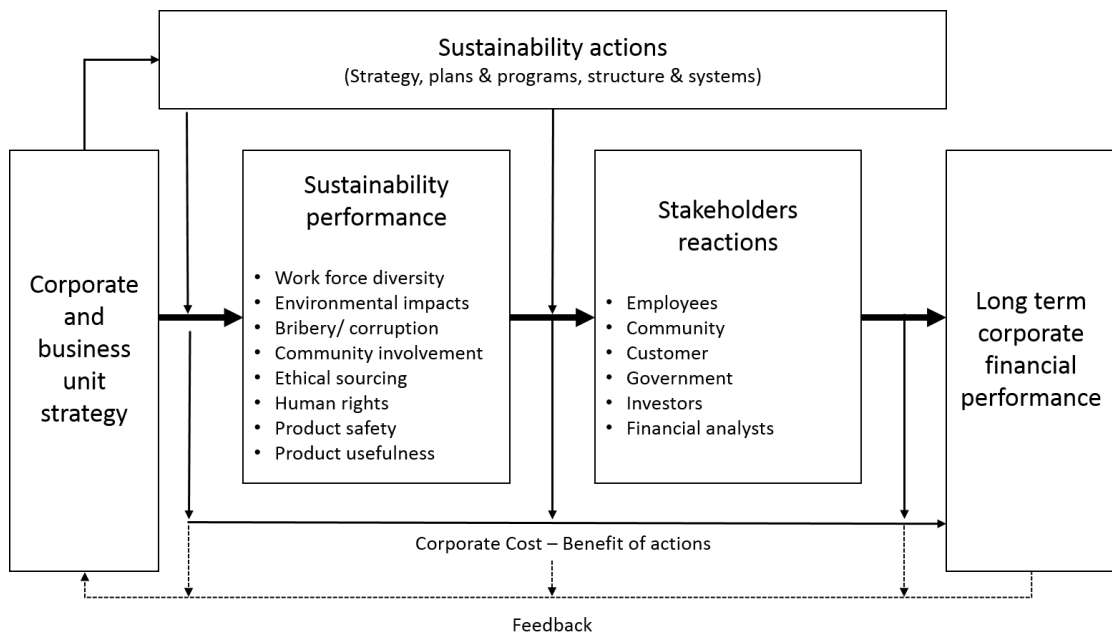


Figure 11 Drivers of sustainability and financial performance (Epstein and Roy, 2001, p. 588)

The second step in the framework is the formulation of a sustainability strategy, the development of plans and programmes and the design of appropriate structures and systems (Epstein and Roy, 2001). To continuously improve the sustainability performance, it is important to measure and compare it with goals and targets that have been defined beforehand. The resulting stakeholders' reactions affect the short-term revenues and costs and long-term corporate performance (Epstein and Roy, 2001). The customers show loyalty and a long-term stream of purchases. The employees will also show loyalty and commitment and the shareholders will provide long-term and patient capital (Epstein and Roy, 2001). Epstein and Roy do not show any proof that these benefits come from the application of the framework. Their work is based on literature and not on empirical data.

In summary, the framework helps to improve the sustainability actions of a corporation and it helps to see the interdependences to other parts of the corporation and to the financial performance of the corporation. The approach gives advice how to apply it to a corporation and it is also possible to adjust the



approach to the specifics of a corporation. Due to this, the approach is very general and not very concrete. Accordingly, the application of the framework needs a lot of competencies, especially when formulating the sustainability strategy.

In recent years, the above framework has been further developed towards a corporate sustainability model (Epstein and Buhovac, 2014). The corporate sustainability model (Figure 12) displays the complexity of corporate sustainability, the interconnectivity, and its transdisciplinarity, which should be considered within corporate sustainability research (Schaltegger et al., 2013).

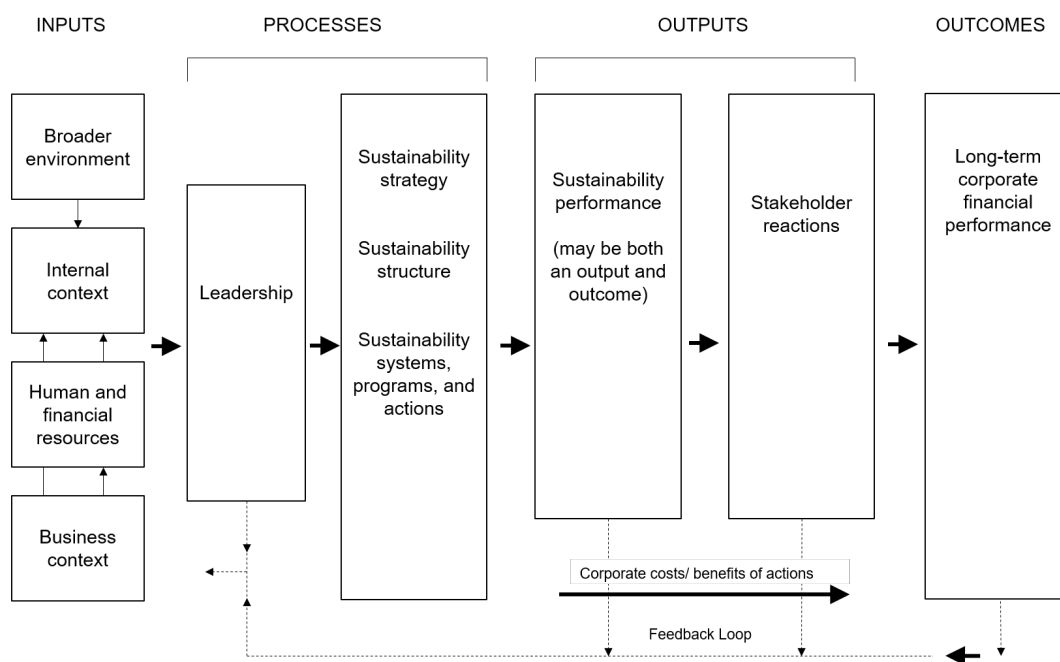


Figure 12 Corporate Sustainability Model (Epstein and Buhovac, 2014, p. 30)

The aim of the model is to give managers the possibility to measure and manage the sustainability performance. It also aims to support the implementation and evaluation of corporate sustainability (Epstein and Buhovac, 2014).

For the improvement of the sustainability performance the “Processes” need to be considered. The input is defined through the factors that cannot easily be changed, except the internal context. The internal context means the examination

of sustainability elements that relate to the current strategy of the corporation. The change, respectively the development of the sustainability strategy is also part of the “Processes”. Of course, the output and the outcomes are not an option for the improvement of corporate sustainability.

### **The Sustainability Balanced Scorecard**

“Sustainability management with the Balanced Scorecard seeks to address the problem of corporate contributions to sustainability in an integrative way” (Figge et al., 2002, p. 272). The approach of the Sustainability Balanced Scorecard (SBSC) is not about monitoring sustainability activities, it is a procedural approach. Figge et al. (2002) state that in order to achieve a strong corporate contribution to sustainability, it is necessary to improve all three dimensions of sustainability, regarding the definition of Elkington (1999), simultaneously.

Figge et al. (2002) describe three different approaches for the integration of sustainability into the Balanced Scorecard. The first approach is, to integrate environmental and social aspects into the four perspectives of a balanced scorecard: the financial perspective, the customer perspective, the internal process perspective, and the learning and growth perspective. This approach is applicable for strategically relevant environmental and social aspects that are already integrated in the market system (Figge et al., 2002). The second approach is the introduction of an additional non-market perspective into the balanced scorecard (Figge et al., 2002). It can be used when environmental and social aspects are strategically relevant and cannot be integrated into the four existing perspectives (Dias-Sardinha et al., 2002, Figge et al., 2002). The third approach is an extension of the first two approaches, the deduction of a separate environmental and social scorecard (Figge et al., 2002). Epstein and Wisner (2001) conducted a research in different companies to explore how they already

use a SBSC. They identified three ways to integrate sustainability into the balanced scorecard. The integration of the goals into the already existing perspectives, adding a new perspective for sustainability and the integration of the sustainability goals into the perspective of the business processes (Epstein and Wisner, 2001).

The advantage when using a Balanced Scorecard for sustainability management is that all activities are linked to the business strategy and by that, social and environmental issues are going to be integrated into the main business activities (Epstein and Wisner, 2001, Figge et al., 2002). Further, it links the sustainability performance to the financial performance of the organisation, it helps to develop a sound sustainability strategy supported by metrics (Epstein and Wisner, 2001). Especially the quantification is very helpful, since sustainability is often seen a soft factor without metrics, which makes it very hard to argue its necessity. Through the SBSC this problem can be reduced. It is not an operational approach. The organisations need to be used to the Balanced Scorecard, because the approach is based on it. The descriptions are not detailed, accordingly organisations need to have knowledge about both topics, the use of a balanced scorecard and the elements of sustainability.

### **EFQM Framework for Sustainability**

The EFQM Framework for Sustainability can be used in any kind of organisation, regardless of size or sector (EFQM, 2015). The framework gives advice for core parts of an organisation.

The “Leadership” has to define and communicate the corporate strategy. It has to anticipate and respond to the needs and expectations of the stakeholders. Further, it needs to be transparent and accountable (EFQM, 2015).

The concept of sustainability needs to be integrated into the core strategy, the value chain and the process design. To develop a “Strategy” the stakeholders’ needs and expectations should be considered, but also a future scenario planning and a risk management should be included (EFQM, 2015). The framework does not give specific advice how this step should be conducted. It rather refers to the results of each step without giving a guideline how to achieve those.

The Human Resource Management ensures fairness and equal opportunities. It has to provide a healthy work/life balance, although the connectivity and the globalisation conflict with that. Further, it has to ensure the commitment of the employees towards sustainability (EFQM, 2015).

“Partnership & Resources” should include the selection of partners that are in line with the strategy and values. Thereby ethical purchasing policies should be implemented. Regarding the resources it is necessary to evaluate alternative and emerging technologies at any time, in order to reduce the negative impact on the goals of sustainability (EFQM, 2015).

The “Process, Products and Services” is the enabler that has the obvious connection to sustainability. It should include a responsible product and service portfolio design (EFQM, 2015). Therefore, the development of process performance indicators is necessary to review the efficiency and effectiveness of key processes and their contributions towards the strategic goals (EFQM, 2015). The management of the product and service lifecycle also needs to be responsible, and the sustainability benefits should be defined and communicated. All production and delivery processes should be optimised with regard to their impact on sustainability (EFQM, 2015). The framework does not explain how a company should achieve this. It does not present a framework, strategy or guideline that shows how processes should be optimised with regard to their

sustainability impact. This certainly supports the need addressed in the aim of this thesis to develop a framework for the integration of sustainability into business process management.

The EFQM Framework for Sustainability is also a strategic approach. It gives advice in which areas an organisation needs to be active to become a sustainable organisation. It also helps to identify outcomes of sustainability activities. Another advantage of this approach is that the principles of EFQM Model are easy to understand. However, the description of this approach is very rough, which makes it hard for organisations to applicate this approach by themselves. The description gives the user an idea of what to do, without being a guideline. The framework misses to answer the question how the improvements should be done.

No evidence was found in the literature review to what degree this framework is in use throughout different companies.

In the next section the approaches that specifically deal with the integration of sustainability through business process management will be presented. The section concludes with a summary of the evaluation of the found integration approaches.

#### *2.1.5.5 Integration Corporate Sustainability into Business Process Management*

Two frameworks have been found that specifically deal with the integration of corporate sustainability into business process management. First an approach that extends the business process notation, “Green Business Process Management” by Recker et al. (2012). Second a very general model that deals with the integration into the management system, the “Integration into Business Process Management System” by Rozman et al. (2015). These are the only two approaches that could be found that address the integration of corporate

sustainability into business process management, although it is certainly advised by researchers to use business process management.

Kiron et al. (2012) describe integration into the business processes as a critical factor for the longevity of sustainability. Business processes transform an input into an output and display the activities of a business (Draheim, 2010, Schmidt, 2012).

Good processes lead to good outcomes which help to improve sustainability. They also lead to a deep understanding of the organisation's issues, which also helps to improve sustainability. New sustainability activities can be planned with regard to the organisation's issues (Beckett and Jonker, 2002). Referring to Isaksson (2006), business process management, a system to manage business performance through the management of end-to-end processes (Hammer, 2015), could be seen as a methodology for describing and improving organisational sustainability.

"Process improvement" can lead to an increased sustainability performance, not just in an economical sense, but also in the sense of social and environmental performance. The three dimensions of sustainability could also be applied to the "measurement of processes", for example the input, the output, or the level of resources performance (Isaksson, 2006). Research often identifies the integration of corporate sustainability on the operational level as useful (Eccles et al., 2012, Lubin and Esty, 2010), especially integration into the "business process management" and its parts (Baumgartner and Rauter, 2017, Engert et al., 2016, Oertwig et al., 2017, Rozman et al., 2015).

## **Green Business Process Management**

Green Business Process Management is an extended BPMN to measure the carbon footprint of a business process, developed by Recker et al. (2012). The notation covers symbols for: fuel consuming activity, paper consuming activity, greenhouse gas emission indicators, and greenhouse gas flow. Thereby it helps to capture the carbon footprint information relevant to a business process, to identify the processes and activities that produce greenhouse gas and helps to make quick and effective adjustments towards a sustainable process. The approach is supplemented by a measuring tool (Recker et al., 2012). Even though the identification and measurement of process steps with a negative impact on sustainability is a good starting point, it does not give any actual advice how to improve the identified steps. Recker et al. (2012) state that the documentation is just one step when making a process sustainable. The redesign should be preceded by appropriate analyses. They developed the Activity-Based Emission Analysis to determine the emission of carbon dioxide for each activity and the overall process (Recker et al., 2012). To proceed with this analysis five steps are necessary. The organisation needs to identify the products or services that should be considered. Second, all the resources and processes that are required need to be determined including their carbon dioxide accumulation. Third, they need to determine the emission drivers for each driver. Then the carbon dioxide emission for each activity can be calculated and finally the overall CO<sub>2</sub> emission of the process (Recker et al., 2012).

This approach only focuses on the environmental dimension of sustainability. It is a very practical approach and the application is not too complicated especially for organisations that already have experience with the BPMN notation. Despite its practicability it remains a notation exclusively. It is not designed to improve the

sustainability performance of a company. It simply represents the first step on a company's way to becoming more sustainable. Furthermore, it only considers the environmental dimension of sustainability. Conclusively this approach does not fill the research gap of finding a way to improve sustainability through BPM.

### **Integration into the Business Process Management System**

Rozman et al. (2015) developed a framework for the integration of sustainability into the business process management system. There are different reasons for the link between sustainable development and the business process management: strategic alignment, governance, methods, information technology, people and organisational culture (Rozman et al., 2015). Prerequisite for the integration of sustainability is an established business process management. A good starting point for the integration is the vision of the corporation, which needs to be updated, as well as the strategy and the tactics. In the same way, the process architecture needs to be updated and finally the management, core and supporting processes (Rozman et al., 2015).

The presented framework is not exhaustive. As can be seen in Figure 13 it only shows a process architecture, including key process areas, where sustainability aspects are already considered. The paper of Rozman et al. presents the framework for the integration with the help of one example corporation. Additionally, the described process architecture represents a single, fictitious company and is not generalisable in its detail.



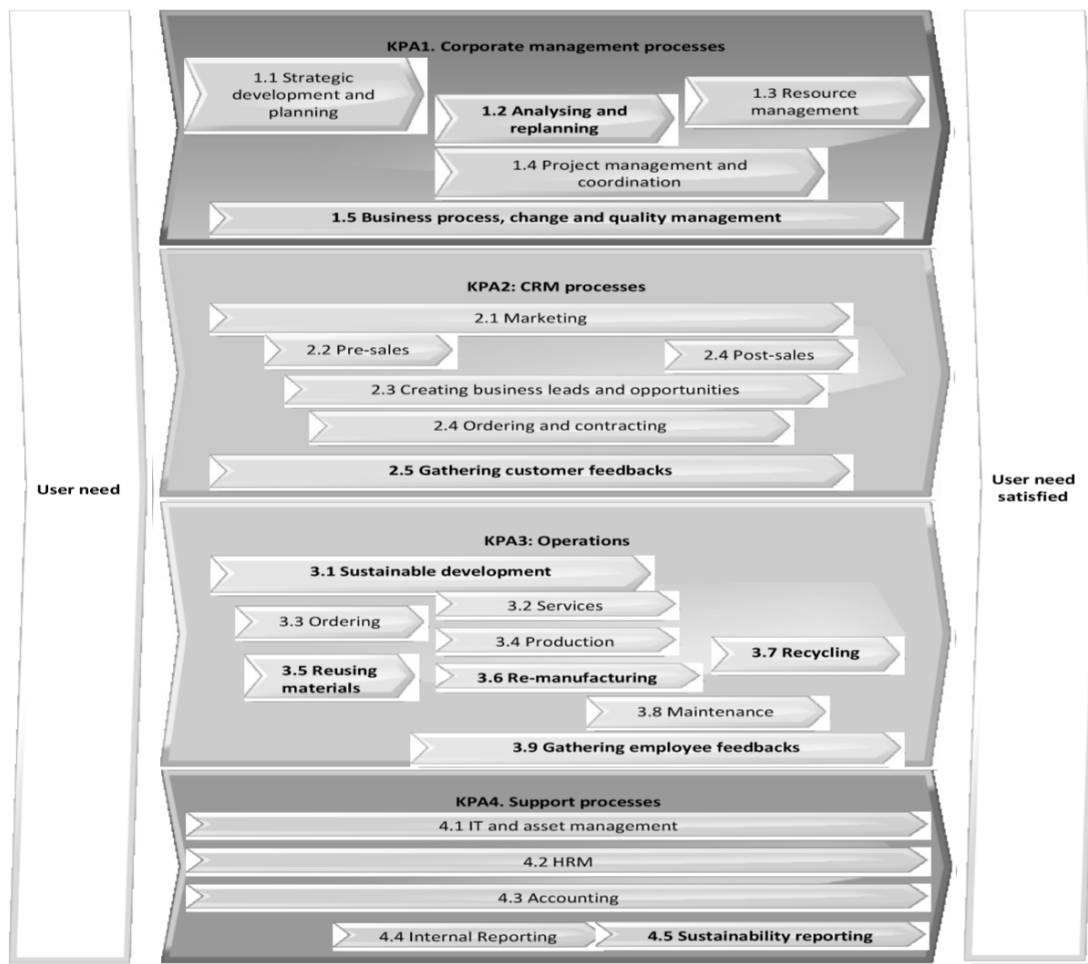


Figure 13 Process architecture with some sustainability related processes covered (Rozman et al., 2015, p. 254)

The framework presents the integration on a corporate level, on the process landscape level, and on the process and operations level (Rozman et al., 2015). But it does not really give advice how the integration can be performed in general. The paper, on the one hand, presents an integration approach on all levels of business process management but on the other hand, it is much too vague and cannot really be described as a framework, as done by Rozman et al. themselves. Thus far no literature was found that documents a sound validation of this framework. Accordingly, there is no evidence that the framework is usable and serves the acclaimed purpose to improve sustainability performance. There is still a gap in research how to integrate sustainability, respectively the goal of sustainable development into the business process management.

Regarding the interconnectivity of BPM and sustainability, only two approaches have been found in current literature (Recker et al., 2012, Rozman et al., 2015). This fact alone demonstrates that the possible integration of sustainability through BPM has not been studied exhaustively. Furthermore, the presented approaches are either limited to a notation of need-to-be-improved processes or are too vague in their description of a possible implementation. Additionally, no literature could be found that an existing approach has been fully validated or is in use in current practice. Other tools that are described above, even though representing possible connecting points for corporate sustainability, are limited to either the strategic level, such as the ISO 14000, or to communication, or the reporting of sustainability, namely the Sustainability Reporting Guidelines and Corporate Sustainability Model. A clear link between sustainability initiatives, the strategic management and the operations management is missing thus far (Opresnik and Taisch, 2015). Additionally Witjes et al. (2018) point out that a tool that supports the overall integration of corporate sustainability is yet to be developed.

In a literature review, Baumgartner (2014) found that even though different instruments, tools and frameworks to support the management of corporate sustainability exist, a holistic and integrated view on corporate sustainability is still missing. He describes the lack of knowledge on the management level how to cope with corporate sustainability strategies as a whole despite the fact that the integration of sustainability represents a strategic task (Baumgartner, 2014).

It can be said that a more integrative view on corporate sustainability has been emerging over recent years (Hahn et al., 2014). So far, the existing approaches to integrate sustainability are lacking a holistic concept that provides the integration of sustainability with respect to all dimensions of sustainability as well

as relating to a company's system in its entirety. Furthermore, most of the approaches are missing a method to formulate the next step after the strategy development, how to turn the strategy into action (Engert et al., 2016, Figge et al., 2002, Bonini and Görner, 2011, Eccles et al., 2012, Kiron et al., 2015). This makes the execution of the formulated strategy one of the biggest problems, when integrating sustainability into a company (Figge et al., 2002, Kiron et al., 2015). The work by Recker et al. (2012) and Rozman et al. (2015), described above, show the necessity of conducting research on the integration of corporate sustainability via BPM. They do not, however, provide any directions to help carry out the integration. Other approaches include evidence that the integration could be carried out using the processes, but they also do not recommend a precise approach (EFQM, 2015, TÜV SÜD Management Service GmbH, 2014). Other approaches deal with the integration of corporate sustainability in more detail, but they do not use BPM as a vehicle for the integration (Figge et al., 2002, Epstein and Wisner, 2001, Global Reporting Initiative, 2015). More research on the integration of sustainability is still necessary (Sroufe, 2017).

In the following section a literature review on Business Process Management is presented. It aims to identify and establish key areas relevant to sustainability and to evaluate the current status of research in the area of Business Process Management.

## **2.2 Business Process Management**

“Importantly, BPM is not about improving the way individual activities are performed. Rather, it is about managing entire chains of events, activities and decisions that ultimately add value to the organisation and its customers. These chains of events, activities and decisions are called processes” (Dumas et al., 2013, p. 1).

A business process transforms an input into an output. They display the activities of a business and aim to reach a defined target. This means the target defines the business processes (Draheim, 2010, Schmidt, 2012). The main target of a business process is the creation of customer value (European Association of Business Process Management, 2014).

Business Process Management (BPM) is “the discipline of managing processes to continually improve agility and business performance outcomes” (IBM, 2014, p. 3). It is a system to manage business performance through the management of end-to-end processes. BPM is a customer-centred approach to organisational management (Hammer, 2015). Smart et al. (2009) describe it as an ongoing commitment to the management of end-to-end processes. It changed from process management in departments to process management aligned to customer requirements (Kohlbacher, 2010, Palmberg and Mi Dahlgaard-Park, 2009, Smart et al., 2009). A relevant advantage of business process management is the increased customer focus and the improved ability to respond to customer needs (Lee and Dale, 1998, Pritchard and Armistead, 1999, Zairi, 1997). Hammer (2015) also identified improved customer satisfaction and the better responsiveness as benefits of an established BPM. At this point the connection can be made to sustainability. Sustainability is one of the customer requirements that should be reached with the help of BPM. Business process

management focuses on customer to customer business processes (Kohlbacher, 2010) and a link is made between business processes and the realisation of organisational objectives (Smart et al., 1999) such as sustainability.

### **Definition of Business Process Management**

With reference to the paragraph above, Business Process Management can be defined as a management approach of end-to-end processes with a specific focus on customer requirements and needs to continually improve agility and business performance outcomes.

Business process management is a method for a process-oriented business. The core tasks of business process management are to ensure consistent outcomes and design, documentation, measurement, and improvement of the business processes (Deming, 2000, Dumas et al., 2013). Business processes are a critical factor of success, they have a great impact on profit, costs, and on product and service quality (Becker et al., 2009). Further BPM leads to a greater focus on value chains, increasing transparency, more efficient use of resources, and higher flexibility (Helbig, 2003). The increased competitive advantage (Armistead, 1996) through cycle-time reduction and more management control are further improvements (Gulledge and Sommer, 2002). The resource planning of a company is directly connected to all three parts of sustainability, for example a reduction of resource consumption will improve the financial performance and by that the economic sustainability, it will also improve the ecological sustainability. Resource planning also includes employee planning and can have a positive influence on social sustainability through that. Furthermore, Business Process Management helps to overcome cross-functional boundaries (Hammer, 2015, Llewellyn and Armistead, 2000). Increased effectiveness through high performance processes is a major advantage of BPM (Hammer, 2015, Lee and

Dale, 1998), as well as the improved productivity (Alfaro et al., 2007) and the improved financial performance (Škrinjar et al., 2008). With BPM a greater corporate agility can be achieved (Neubauer, 2009), which also supports the integration of corporate sustainability. As will be shown later in the interviews sustainability requires flexibility due to the fact that the topic is further developing, the requirements of the stakeholders are changing, and the relevant objectives are changing accordingly. To integrate sustainability successfully the company must be able to respond to these changes.

The discipline of Business Process Management emerged in the 1990s from different disciplines: the management tradition, the quality control tradition and the IT tradition (Harmon, 2015). It was promoted by different research. Amongst others, the research work of Davenport (1993) about process innovation and the work of Hammer and Champy (1993) about process reengineering can be named. It can also be seen as a continuation of workflow management (van der Aalst, 2018). From the beginning it was of high interest to both researchers and practitioners. A study conducted by Pritchard and Armistead (1999) showed that already at this time BPM was of great importance to the companies' managers. Over 80% of the respondents rated BPM as very important to their company and another 15% rated it fairly important (Pritchard and Armistead, 1999). The study also investigated the main drivers and benefits of Business Process Management from the managers' point of view. The three main drivers are the need to improve responsiveness, the competitive threat, and the need to improve quality (Pritchard and Armistead, 1999). The main benefits named are the improved relationship with customers, the better cross-functional working, and a change in organisational culture (Pritchard and Armistead, 1999). The most important drivers for companies have hardly changed. A much more recent study

conducted by Harmon and Wolf (2016) showed that companies are still interested in BPM due to the need to save money by reducing costs, the need to improve customer satisfaction to remain competitive, and the need to improve management coordination or organisational responsiveness.

At first research was very generic and lots of studies were conducted. For example, the work of Elzinga et al. (1995) describes a generic step by step method for the implementation of BPM including methods, tools and software to support the implementation. They also examined the actual approaches of the industry towards their process quality assessment (Elzinga et al., 1995). Further examples are the work of Zairi and Sinclair (1995) and Zairi (1997). The aim of these research papers was to define the key elements of BPM (Zairi, 1997). The first paper was about Business Process Reengineering and TQM, origins of BPM (Zairi and Sinclair, 1995). The research aimed to define BPM and to support companies in establishing BPM.

In recent years remarkable progress has been made in different areas of BPM. The most impactful are the syntactic verification of complex business process models before implementing them, the systematic identification of typical process behaviours based on scientific evidence, the adaptation of processes on-the-fly, and the evaluation of the impact of their changes, in order to react to unexpected exceptions (van der Aalst et al., 2016).

The research has led to an extensive set of tools, methodologies and techniques (van der Aalst et al., 2016, vom Brocke and Rosemann, 2015).

The framework displayed in Figure 14 sums up the different business process trends, divided into three separate levels: the enterprise level, the business process level and the implementation level (Harmon, 2015).

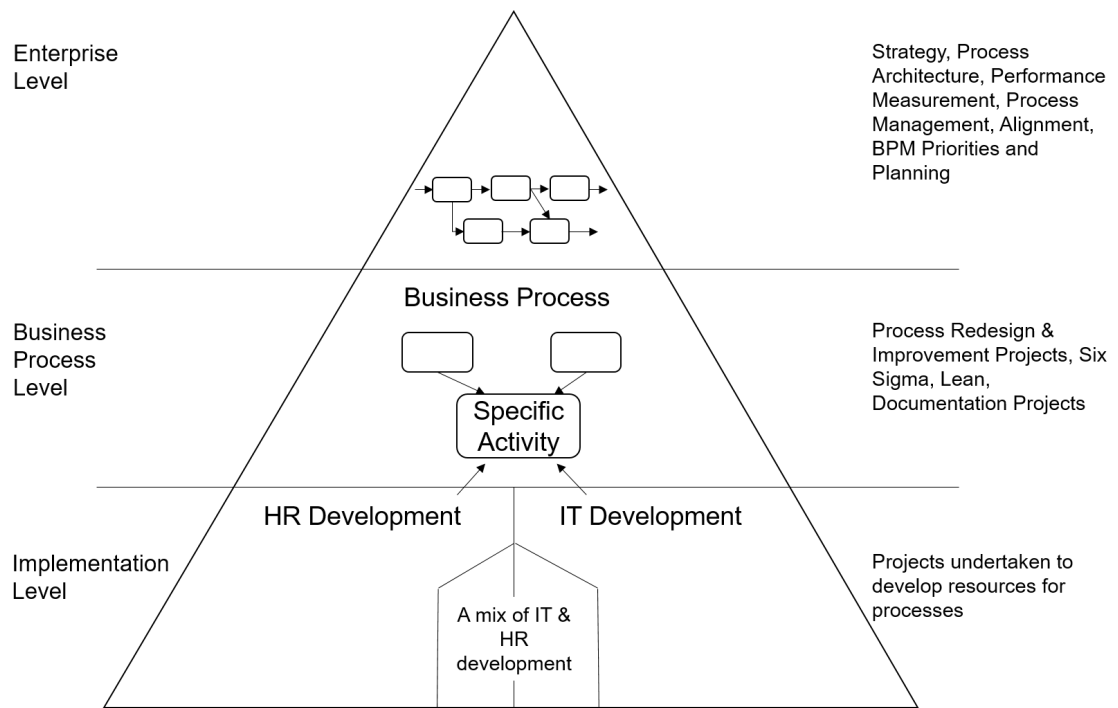


Figure 14 The business process trends pyramid (Harmon, 2015, p. 54)

As the maturity of Business Process Management is increasing, companies are beginning to work on more than one level (Harmon, 2015). The framework (Figure 14) shows what is done on each level. At the enterprise level, the focus is on the organisation of the processes over the entire company in alignment with their strategy. The process level is mainly about the process redesign and improvement and the implementation level focuses on the new technologies to support process work (Harmon, 2015).

Different frameworks for BPM can be found, although more of them deal with specific parts of BPM rather than giving a general overview. The researchers vom Brocke and Mendling (2018) present a general review about BPM in which they explore the three well-established frameworks, the BPM Lifecycle Model of Dumas et al. (2013) and the BPM Context Framework of vom Brocke et al. (2015), besides the BPM Six Core Elements Model of vom Brocke and Rosemann (2015), which is used in this thesis. The framework of the six core elements gives an impression of the complexity of Business Process Management. Rosemann



and vom Brocke (2015) present the six core elements of BPM: strategic alignment, governance, methods, information technology, people, and culture (Figure 15). This framework is used for this thesis because it gives a good overview of the most important parts of business process management. Therefore, it seems appropriate to use the framework as a starting point for the literature review on BPM.

Strategic Alignment	Governance	Methods	Information Technology	People	Culture	Factors
Process Improvement Planning	Process Management Decision Making	Process Design & Modelling	Process Design & Modelling	Process Skills & Expertise	Responsiveness to Process Change	Capability Areas
Strategy & Process Capability Linkage	Process Roles and Responsibilities	Process Implementation & Execution	Process Implementation & Execution	Process Management and Knowledge	Process Values & Beliefs	
Enterprise Process Architecture	Process Metrics & Performance Linkage	Process Monitoring & Control	Process Monitoring & Control	Process Education	Process Attitudes & Behaviours	
Process Measures	Process Related Standards	Process Improvement & Innovation	Process Improvement & Innovation	Process Collaboration	Leadership Attention to Process	
Process Customers & Stakeholders	Process Management Compliance	Process Program & Project Management	Process Program & Project Management	Process Management Leaders	Process Management Social Networks	

Figure 15 The six core elements of BPM (Rosemann and vom Brocke, 2015, p. 112)

In the following, these six elements will be presented in further detail and examined regarding their connection to the framework that is going to be developed. It will be discussed which part(s) of business process management can be used to help integrate corporate sustainability.

### 2.2.1 Strategic Alignment

Strategic alignment means that Business Process Management needs to be aligned with the overall corporate strategy (Rosemann and vom Brocke, 2015). This gives the possibility to link organisational priorities, such as corporate sustainability with the processes and to enable a continual and effective improvement of the business performance through that.

Rosemann and vom Brocke (2015) name five capability areas of strategic alignment. First, a process improvement plan which is derived from the organisation's strategy. It has to outline how process improvement is going to meet the strategically prioritised goals of the organisation. At this point the goals of sustainability need to be considered when developing the process improvement plan. The requirement to identify the performance gap of the processes regarding the sustainability goals goes hand in hand with that, since it gives the direction in which processes need to be improved.

The second area is the linkage between corporate strategy and business processes. Also Pritchard and Armistead (1999) state that there needs to be a link between BPM, business planning and the performance measurement and review. Processes can not only be a facilitator for the achievement of the company's objectives, they can also be an inhibitor if they are not aligned with the strategy (Hammer, 2015). Tools that can help to link the strategy with the processes are, for example, the strategy map of Kaplan and Norton (2004), the Balanced Scorecard (Kaplan and Norton, 1996) or the Business Motivation Model (Object Management Group, 2014). For the integration of corporate sustainability, it is certainly necessary to first link the strategy for corporate sustainability to the corporate strategy which is then linked to the business processes.

The enterprise process architecture is the third capability area. The enterprise process architecture needs to cover the major existing business processes and a description of the value chain and the supporting business processes (Rosemann and vom Brocke, 2015). Burlton (2015) evolved a process to develop an enterprise process architecture that considers different influencing variables such as environmental pressures, stakeholder interests, and corporate strategy.

The strategic alignment also needs to be expressed through the process outputs and its related KPIs (Rosemann and vom Brocke, 2015).

The fifth capability area, Process Customers & Stakeholders, means that BPM needs to consider the actual priorities of all stakeholders, including senior management, shareholder, government bodies, etc. (Rosemann and vom Brocke, 2015). This capability area gives a connecting point to corporate sustainability, since sustainability is required by stakeholders and customers.

The strategic alignment is a key to a successful implementation of BPM (Hung, 2006, Zairi and Sinclair, 1995).

### **2.2.2 Governance**

BPM governance means to define roles and responsibilities for all levels of the Business Process Management (Rosemann and vom Brocke, 2015). Governance is one of the success factors to business process management (Ravesteyn and Batenburg, 2010).

“In short, we define business process governance as the formal or informal, personal or impersonal, intra- or inter-organisational (1) vertical structures by which activities are organized and managed and (2) lateral roles, relations, processes, and rules for coordinating and controlling across business process activities” (Markus and Jacobson, 2015, p. 315).

Braganza and Lambert (2000) designed a Process Governance Framework that displays the link between the corporate strategy, the business processes, the operational activities, and governance issues. The framework should give organisations the possibility to respond to strategic and environmental changes (Braganza and Lambert, 2000).

Furthermore Spanyol (2015) developed a checklist for companies that are aiming to implement a governance framework for BPM. He also noted that different BPM governance elements are essential for sustaining and optimising operational performance improvements, such as refinements to organisational structure, executive roles and responsibilities, and performance measures (Spanyol, 2015).

A survey conducted by Zairi and Sinclair (1995) shows that assigning responsibilities is a critical factor of success. This part of the BPM is not directly linked to the integration of corporate sustainability into BPM, although it is definitely necessary to define roles and responsibilities for corporate sustainability as well. Hence BPM governance should be adapted to corporate sustainability to integrate it successfully. While governance of BPM is essential for the good management of corporate processes, it is not central to the integration of corporate sustainability into BPM.

### **2.2.3 Methods**

Business Process Management needs to be supported by a systematic methodology (Zairi, 1997). Rosemann and vom Brocke (2015) include all tools and techniques that support and enable BPM activities. The factor method also has five capability areas, as follows.

Process design and modelling is the first capability area. Beside the process modelling techniques it also includes process analysis methods. Dumas et al. (2013) present a summary of existing qualitative and quantitative analysing methods. Qualitative techniques are used to gather a general understanding of weaknesses and opportunities for process improvement; by contrast quantitative techniques are dealing with process performance measures, like cycle times, waiting times, costs, and resource utilization (Dumas et al., 2013).

Possible methods for the quantitative analysis are flow analysis, queueing analysis, and simulation (Dumas et al., 2013).

This capability area is relevant to the integration of corporate sustainability. Although the framework that is going to be developed will not itself describe how sustainable processes will be designed and modelled, it needs to use existing processes and analyse them regarding their impact on sustainability and it will also help set the guidelines how processes need to be improved or newly designed to have a positive impact on corporate sustainability.

Process design and modelling is a capability area of BPM where lots of research is going on. In the following relevant literature regarding this capability area will be described, since it is definitely linked to the aim of integrating corporate sustainability into business process management, as described above.

A variety of different modelling techniques exists whereas not all models have the same purpose. Aguilar-Savén (2004) divides the purposes of business process models into four main categories: (1) descriptive models for learning, (2) descriptive models and analytical models for decision support to process development and design, (3) enactable or analytical models for decision support during process execution, and control and (4) enactment support models to Information Technology. In the framework of Aguilar-Savén (2004) the modelling techniques are also classified into passive and active models. Active models are dynamic, passive models do not allow an interaction or changes, without remodelling the process.

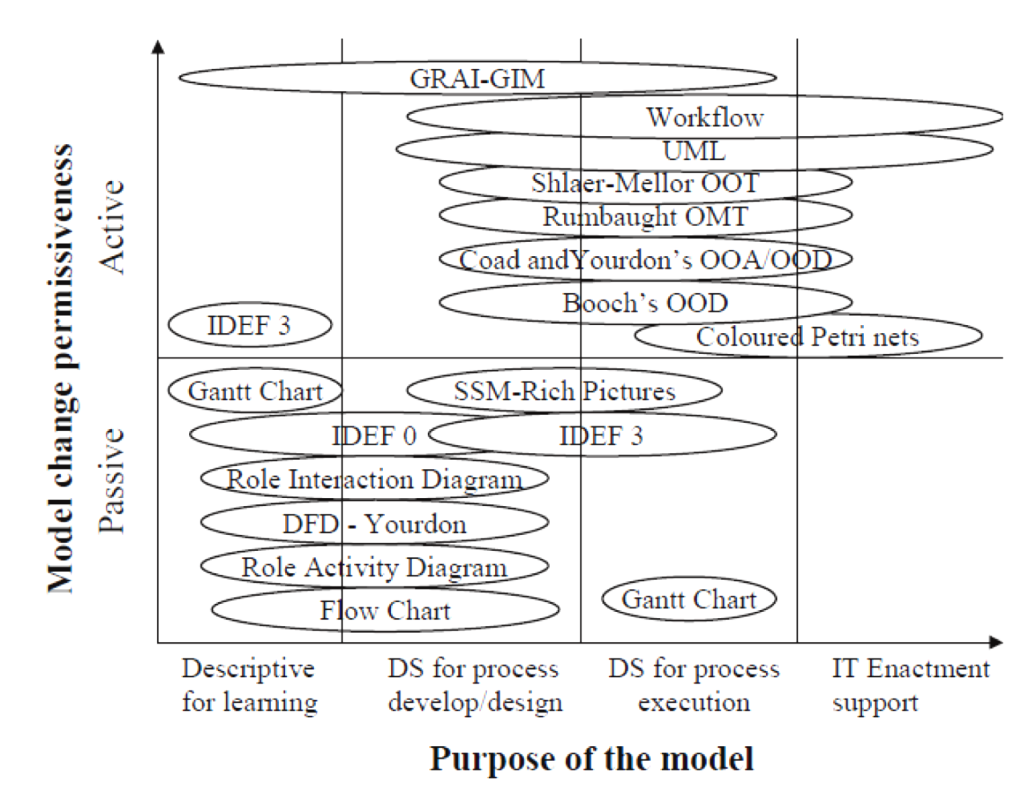


Figure 16 Classification framework to select among business process modelling techniques (Aguilar-Savén, 2004, p. 146)

In Figure 16 the framework of Aguilar-Savén (2004) is shown. The main modelling techniques that existed at the time were categorised regarding the purpose of the model (x-axis) and the model change permissiveness (y-axis).

A passive model allows analysis and supports process development. It should be selected to integrate sustainability. This kind of model allows to analyse existing processes regarding their impact on the goals of corporate sustainability and in the following to develop processes in a sustainable manner. According to the framework of Aguilar-Savén (2004), the following modelling techniques can be used: IDEF0, IDEF3, Role Interaction Diagram, DFD-Yourdon, Role Activity Diagram, Flow Chart. Another comparable business process modelling language is the BPMN (Business Process Model and Notations) language. This modelling language is based on some of the other notations and methodologies. It also takes the transformational approach.

BPMN is a standard business process modelling language and it is widely supported and used by the industry (Aagesen and Krogstie, 2015), for this reason BPMN will be presented with more detail in the following.

The BPMN modelling language has four basic categories of description elements: flow objects, connecting objects, swimlanes and artefacts. The flow objects include events, activities - that are performed repeatedly – and gateways. The activities include processes, sub-processes and tasks. The connecting objects link the flow objects. The swimlanes denote a participant in a process and the artefacts are data objects, data stores, groups and annotations (Aagesen and Krogstie, 2015). “In BPMN a Process is depicted as a graph of Flow Elements, which are a set of Activities, Events, Gateways, and Sequence Flows that define finite execution semantics” (Object Management Group, 2011, p. 145).

The third capability area for the factor method is process control and measurement. It means the collection and consideration of process related data for process control and performance measures (Rosemann and vom Brocke, 2015). In the context of corporate sustainability, performance indicators are still an important research field.

Process improvement and innovation is the fourth capability area. For an effective business process improvement, systematic methodological approaches are needed (Harrington and Harrington, 1995). Various different methods exist for this purpose. Hammer (2015) defined a process management cycle (Figure 18), which is based on the PDCA-cycle of Deming. The cycle gives companies a structured approach for the management of processes. As can be seen in Figure 18 the main information needed is customer needs and the process performance. If a gap exists between the two an intervention plan needs to be developed. Two main reasons may mean that a process fails to meet the requirements, either the

design or the execution of the process. In both cases actions are necessary to overcome the performance gap.

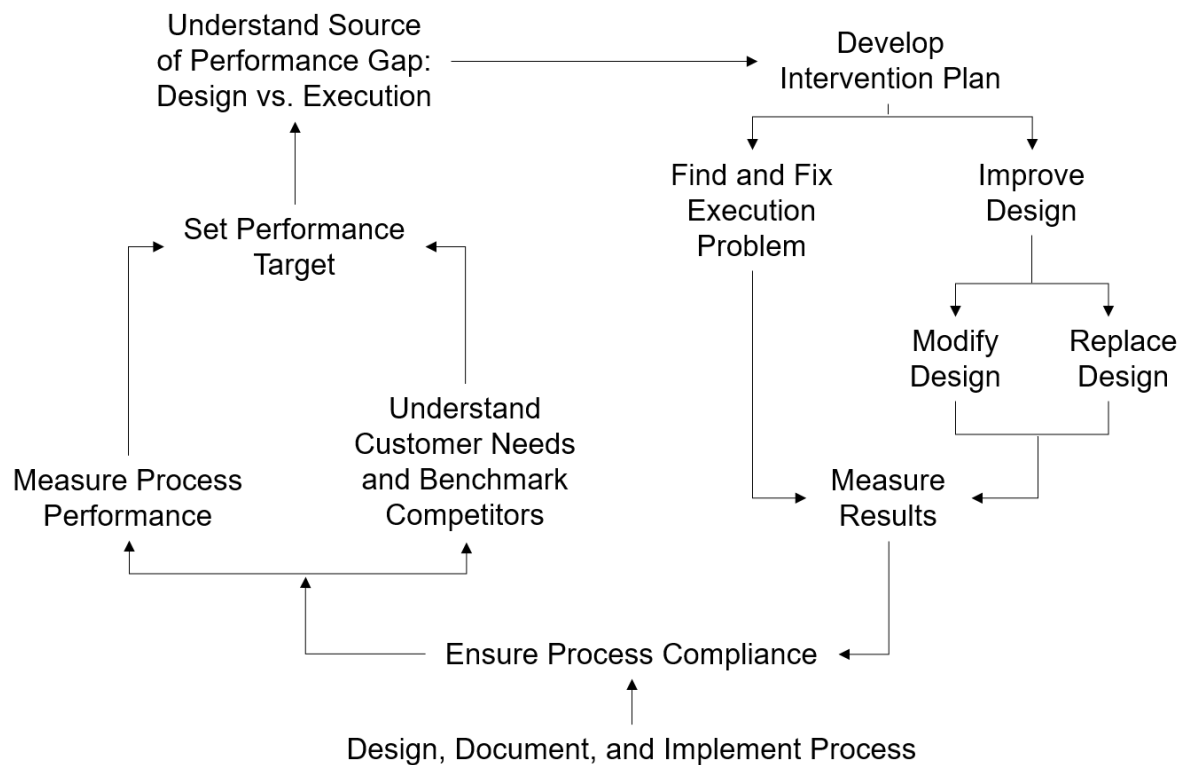


Figure 17 The essential process management cycle (Hammer, 2015, p. 5)

The actions are either to find and fix the execution problem or the improvement of the process design. In case the process design is the reason for the performance gap, Stöger (2011) the two different possibilities a company has, as shown in Table 4.

Depending on the detected performance gap one has to decide between process reengineering and process optimisation.



<b>Criteria</b>	<b>Process Reengineering</b>	<b>Process Optimization</b>
Origin	Effectivity – doing the right process	Efficiency – doing the process right
Logic of the process	Challenging the whole process	Basically retained
Change	Extensive	Only sub-steps
Risk	High	Low
Effect	High	Manageable
Probability of success	Lower as for process optimisation	Higher as for process reengineering

*Table 4 Process Reengineering or Process Optimization (Stöger, 2011, p. 150)*

If process reengineering seems to be the appropriate way, Stöger (2011) suggests the development of different variants and to decide afterwards which variant will meet the defined goals best. The variants that should be developed are to delete whole processes, to delete process steps, to parallelise process steps, to develop different processes for different tasks, or to add a new process (Stöger, 2011).

For process optimisation, the application of “Moments of Truth” is suggested. Each process step is analysed individually and matched with the relevant goals, then possible interferences are evaluated and at last countermeasures are developed (Stöger, 2011).

Further Adesola and Baines (2005) presented a generic model for business process improvement, which is similar to the one presented by Hammer and is also deduced from the PDCA-cycle of Deming. The framework of Adesola and Baines (2005) is also iterative and contains the following steps: understand business needs, understand the process, model and analyse process, redesign process, implement new process, assess new process and methodology, and review process. Some of the steps are complemented by existing techniques, for

example to understand the business needs e.g. SWOT analysis, force field analysis, stakeholder analyses or a pareto analysis can be used (Adesola and Baines, 2005). To understand the process the IDEF0 can be used, a process flowchart, or an ABC analysis (Adesola and Baines, 2005). For process redesign Adesola and Baines (2005) name benchmarking or brainstorming, for example, and for the assessment of a new process and methodology they name action plan, evaluation measurement report, or a customer measurement survey.

Process improvement is directly connected to the integration of corporate sustainability and needs to be considered for the development of the framework. The interviewed companies are already using the PDCA cycle in the context of corporate sustainability which is a strong indicator that this is a suitable tool that should in some way be used for the integration. Furthermore, when integrating corporate sustainability, it is the aim to improve business processes, so they have a positive impact on the goals of corporate sustainability.

The last capability area of the factor method is the process project management and program management which covers the enterprise wide management of BPM (Rosemann and vom Brocke, 2015).

Beside the method also the technological support and implementation, which are topic of the next section, is important for the success of business process management (Frolick and Ariyachandra, 2006).

#### **2.2.4 Information Technology**

Information technology enables companies to address end-to-end processes (Hammer, 2015). This includes all supportive information technologies, meanwhile they are manifested in so called process-aware information systems (Rosemann and vom Brocke, 2015). An overview over different classes of IT,

how they support business processes, and also a framework to measure the level of support is provided by Sidorova et al. (2015). Although IT has a profound impact on process innovations the association between both is under-explored (Rahimi et al., 2016). In addition van der Aalst et al. (2016) state that there is a considerable gap between the state-of-the-art of BPM technologies and the actual implementation by practitioners.

The factor Information Technology also has five capability areas: IT solutions for process design and modelling, IT enabled process implementation and execution, process control and measurement, process improvement and innovation, process project management, and program management (Rosemann and vom Brocke, 2015).

Regarding information technology the framework that is going to be developed can be used as a starting point to identify and understand the IT requirements for the integration of corporate sustainability in business processes.

### **2.2.5 People**

Business goals can be reached efficiently and effectively when people and other resources like IT play together well and this collaboration can be facilitated by the concept of business processes (Weske, 2007).

“People as a core element of BPM is defined as individuals and groups who continually enhance and apply their process and process management skills and knowledge in order to improve business performance” (Rosemann and vom Brocke, 2015, p. 113).

A successful implementation and realisation of BPM depends on people involvement (Hung, 2006, Zairi, 1997). Strategic decisions about business processes have an impact on the employees and the tasks they perform. It is

necessary that the employees are trained around processes and gain the needed process competencies (Pritchard and Armistead, 1999). Llewellyn and Armistead (2000) conducted a study which showed that the effective operation of a process is affected by the people who work on the process level.

The capability areas of the people factor are process skills and expertise, process management knowledge, process education and learning, process collaboration, and communication and process management leaders (Rosemann and vom Brocke, 2015).

As well as information technology, people will be an important factor to be included in a future framework. The focus of the framework is to support the operations management regarding the integration of corporate sustainability.

### **2.2.6 Culture**

BPM culture is about creating an environment and a corporate culture that supports and enables a process-centred organisation (Rosemann and vom Brocke, 2015).

The related capabilities for this factor are responsiveness to change, process values, and beliefs that engage process thinking within the organisation, process attitudes and behaviour from those who are involved and those who are affected, leadership attention to process management, and process management social networks (Rosemann and vom Brocke, 2015).

Culture is a critical factor for the success of BPM initiatives, it can be an inhibitor or a facilitator (Schmiedel et al., 2015, Zairi and Sinclair, 1995).

Schmiedel et al. (2015) define a set of values of a BPM culture concept. These can be evaluated to decide whether the company has a BPM supportive culture

or not. The values are customer orientation which means a proactive and responsive attitude towards the needs of process stakeholders, excellence, an orientation towards continuous improvement and innovation, responsibility, the commitment to process objectives, and the accountability for process decisions and teamwork which describes a positive attitude towards cross-functional collaboration (Schmiedel et al., 2015).

Further Zairi (1997) developed a checklist that supports companies to develop a BPM culture.

In this chapter the results of a systematic literature review in the area of Corporate Sustainability and Business Process Management are presented, to display the current status of research in this area. Further this chapter builds the basis for the research of this thesis. In detail, the structured literature review about CS contained a quantitative analysis of all used literature. Additionally, the major theories in this field were discussed, as well as its historical development and the definition of CS. The core element of this thesis lies in the integration of CS, which is why the literature review focused on reasons for the integration of CS, as well as barriers to it. Furthermore, current literature on general aspects, alongside tools for the integration and the integration of CS into BPM were examined in detail. One main finding of the literature review on CS was an existing lack of literature on the integration of CS through BPM. This insight led to a second literature review on BPM, covering strategic alignment, governance, methods, information technology, people, and culture.

As a result of this comprehensive literature review the evolving research questions, are going to be formulated in the following chapter.

### **3 Research Questions**

Sustainability is not permanently on the agenda of the management in all businesses. Baumgartner and Rauter (2017) state that “only limited progress towards sustainable development has been observed”. Recent research still lacks tools that can help managers to improve and support the strategic orientation of practices and goals that aim to implement sustainability (Baumgartner and Rauter, 2017, Oertwig et al., 2017). The results show that sustainability is still at its beginning and significant research needs to be done to develop additional methods and tools to support the development of corporate sustainability. A clear link between sustainability initiatives, the strategic management and the operations management needs to be established in future research (Opresnik and Taisch, 2015). Furthermore future research needs to show how the integration of sustainability into strategic management could be done in practice, including appropriate tools (Engert et al., 2016, Loepp and Betz, 2015).

As pointed out by Vermeulen and Witjes (2016) “The academic community needs to play an essential double role here: partly supplying such approaches and tools, and partly critically analysing the progress made and testing the assumptions about effective strategies for transformative change”.

The integration of corporate sustainability into the management of the business operations and processes seems to be very helpful for a variety of reasons, when an organisation wants to reach corporate sustainability. Most of the approaches that can be found are about the integration of sustainability on a strategic level, which is a key factor for the success, because it is the basis to reach sustainability in an integrated way (Figge et al., 2002, Gao and Zhang, 2006).

Thus far it has not been proven in literature that any of the approaches available improve corporate sustainability. As all companies operate through processes, they are used to business process management. Therefore, a valuable research aim is to see how sustainability relates to process management and to see if it will provide ways to fill the gap outlined in the previous chapter. The researcher was unable to find literature focusing on the implementation of corporate sustainability into business process management.

The top management of companies has recognized the growing importance of sustainability (Kiron et al., 2015) and has started to integrate the goals of sustainability into their strategy and into their processes (Bonini and Görner, 2011, Kiron et al., 2012, Loepp and Betz, 2015). The studies did not only present that companies are engaged in integrating sustainability, they also showed that they struggle with the integration (Sroufe, 2017). This is due to missing resources, missing knowledge and skills, and also missing frameworks and models that show them how to do it (Bonini and Görner, 2011, Kiron et al., 2012). Despite the existence of different sustainability integration initiatives, no single one has been proven to be superior to others, instead thus far an individual combination of various initiatives would be necessary to address each company (Lozano, 2012).

Additionally, the literature review showed reasons why organisations struggle with integration. The review of the integration approaches revealed that although it is recommended to integrate corporate sustainability on an operational level, no framework exists that aims to integrate corporate sustainability into business process management. Until now the focus in literature has been on the integration into the supply chain. For example Formentini and Taticchi (2016) made a case study to research the connection between corporate sustainability approaches and governance mechanism at the supply chain level.

The research of Kurdve et al. (2015) presented an approach to improve environmental sustainability at the supply chain level. Opresnik and Taisch (2015) developed a framework on the conceptual level for the management of sustainability as an operation strategy and operation. The approaches presented in the literature review are developed to integrate corporate sustainability into the strategy or into the management (Bonini and Görner, 2011, Eccles et al., 2012, Kiron et al., 2015). There is also no approach that shows how corporate sustainability can be integrated into the business process management or its parts, although this integration is also strongly recommended in literature (Kiron et al., 2012, Isaksson, 2006).

To improve the applicability a theoretically developed approach needs to be validated practically. This step helps to include the specific requirements of an organisation. Certainly, these requirements are varying for each organisation. For example the approach of Figge et al. (2002), the Sustainability Balanced Scorecard or the Sustainability EFQM-Model (EFQM, 2015). Both approaches give advice how to integrate sustainability into an organisation strategy, but without being a real guideline. This means that they outline some rough steps the organisation needs to take when it wants to develop a corporate sustainability strategy. A deep understanding of the subject is necessary to be able to execute the described steps. Figge et al. (2002) stated that the integration of corporate sustainability needs to start with a strategy. The execution of the formulated strategy is seen as one of the biggest problems when integrating sustainability into a company (Figge et al., 2002, Kiron et al., 2015).



Some more success factors and some influencing factors have been identified that definitely need to be considered when developing a new approach. To integrate and implement sustainability into the corporation successfully an inclusive and systematic perspective is necessary (Vermeulen and Witjes, 2016). The value system, the circumstances, and the environment in which an organisation operates should always be taken into account, because not every organisation has the same potential for corporate sustainability (Eccles et al., 2012, Kiron et al., 2015, Marrewijk and Werre, 2003). The environment is often determined by political factors, such as laws or regulations, and also through media, non-governmental organisations, climate change science, consumer demand, or the resource scarcity (Kiron et al., 2012). For a long-term successful integration of sustainability, it needs to contribute to the economic objectives of the company (Figge et al., 2002). Another success factor for the integration of sustainability is the integration of short and long-term aspects, although businesses tend to overemphasize the short term aspects (Dyllick and Hockerts, 2002). Beside companies still having difficulties with integration, because of insufficient data or information to implement initiatives, missing integration in the performance management system, absent engagement of some business units and a lack of the right capabilities and skills (Kiron et al., 2012), another problem of sustainability is that companies struggle to see the connection between their sustainability efforts and the financial performance of the company. This is taken up by Elkington's criticism of companies that are misinterpreting his TBL (Elkington, 2018), as mentioned previously in Section 2.1.4. Hahn et al. (2014) describe the development of tensions within a company between the different dimensions of corporate sustainability. He asks executives to accept and embrace these tensions rather than trying to avoid them or being paralysed by

them (Hahn et al., 2014). Besides these competing priorities, there is a lack of frameworks to incorporate sustainability into the core business (Kiron et al., 2015, Loepp and Betz, 2015). Although businesses are central actors to achieve the necessary transition towards sustainability, research still lacks tools to identify and attain goals that contribute significantly to sustainable development (Baumgartner and Rauter, 2017). As a side note many approaches present a first start to implement CS but are not helpful for companies that have a long history of environmental and CSR policies (Vermeulen and Witjes, 2016).

What really is needed is an approach that helps companies to integrate sustainability into their day-to-day work. This has already been identified as the hardest part of corporate sustainability (Figge et al., 2002, Loepp and Betz, 2015, Vermeulen and Witjes, 2016).

One appropriate possibility for the integration of corporate sustainability into the daily business is business process management, as already mentioned. In the literature some theoretical and some practical evidence can be found that supports this idea. Fistis et al. (2014) assume that business processes have a direct connection to corporate sustainability. This is evidence that it is worthwhile to have a deeper look at the connection between corporate sustainability and the business process management (Cleven et al., 2012, Fistis et al., 2014).

It is already the case that business process management is used to integrate the environmental part of sustainability. The approach targets the reduction of the carbon footprint (vom Brocke et al., 2012). Business process management is a very good starting point, because it is about the understanding, the modelling, and the improving of business processes (Ghose et al., 2010). This is another argument why it is worth looking at a further integration of sustainability.

Although the connection between business process management and corporate sustainability can be found in the literature and it is also supported by data collected in the organisations, until now there are no practical approaches for the integration of all parts of sustainability (Cleven et al., 2012). Rozman et al. (2015) wrote a paper to answer the two following research questions: “Are business process management and sustainability management complementary, and can they be integrated, and which existing BPM related standards could be used for the integration?” They developed an approach that uses different existing models. However, it fails to give a guideline about the integration. They only name existing models and the possibility that they can be used. It does not go beyond this. The approach is explained based on a fictional organisation. The approach does not provide help in the application stage. Rozman et al. (2015) state that it is still necessary to develop an approach to how sustainability can be supported by BPM and how it can be better operationalized in detail.

There is also no definition of corporate sustainability within the business context (Swarnapali, 2017). Even businesses go back to the definition of the Brundtland Report and the definition of John Elkington and they do not give the definition of corporate sustainability a business context (Frecè and Harder, 2018). The existing definitions are general. As a consequence, they fail to display the complexity of corporate sustainability with all its goals, its key performance indicators (KPIs), its stakeholders, and its transdisciplinarity. One good example for this conclusion is the widespread definition of the WCED (1987) for sustainability - *“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 41)* - which is misunderstood by a great number of companies as a definition for corporate sustainability.

Since the existing definitions are very general, researchers have tried to overcome this gap by focusing on only one part of sustainability. Accordingly existing literature on sustainability is very specialised (Lozano, 2015). The only connecting literature that can be found is literature reviews (Lozano, 2015). As a result, it is necessary to conduct more research on sustainability from a holistic point of view.

Vermeulen and Witjes (2016) sum up the need for further support: "The key question is how the academic community can further support companies which are already on the road to sustainability but want to jump to 'all-inclusive' corporate sustainability".

As described above, approaches that have been developed until now are mainly based on literature and miss the link to practitioners. Since the aim of this thesis is to develop a framework that supports the integration of sustainability on an operational level it is essential to include the perspective of practitioners in this research.

From these insights, the main research question for this thesis arises:

*1. How can Corporate Sustainability be integrated into Business Process Management?*

*1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?*

*1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?*

To be able to develop an approach for the integration of corporate sustainability into business process management, that considers the needs of corporations, the following sub-questions have been developed:

*2. How do companies already integrate Corporate Sustainability?*

*2.1 What lessons have they already learned from the integration process?*

*2.2 What are the main difficulties and factors of success?*

In chapter 3 the results of the literature review were used to identify the existing research gap, which resulted in the research questions for this thesis that are mentioned above. First and foremost, the need for an integrative approach of Corporate Sustainability into Business Process Management was identified.

In the next chapter the appropriate research methodology is going to be selected to answer the formulated research questions.

## 4 Research Methodology

Methodology is the way of thinking and studying reality and it implies the methods, techniques, and procedures for gathering and analysing data (Corbin and Strauss, 2015).

For each different research question, a different methodology is suitable. In the following it will be shown how the research questions of this thesis were answered, which methodology, and which research approach is the most appropriate. For the purpose of selecting an appropriate research approach Creswell (2013) developed a framework (Figure 18).

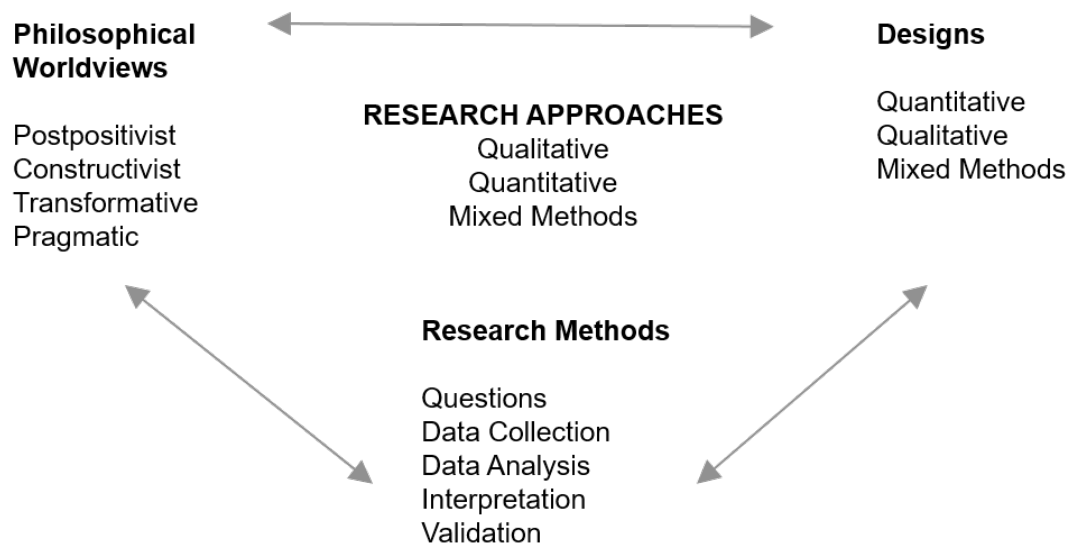


Figure 18 A Framework for Research (Creswell, 2013, p. 5)

The research approach has three main aspects that need to be considered, as can be seen in Figure 18. The first aspect the researcher needs to be clear about is the philosophical worldview. The personal philosophical worldview of the researcher has a main influence on the research design and the research methods (Bortz and Döring, 2016, Creswell, 2013, Saunders et al., 2009).

Depending on the philosophical worldview and the research questions, the research design is selected and determines the research methods that can be used (Creswell, 2013), because it defines the development of knowledge and the nature of that knowledge (Saunders et al., 2009). In the following section, all three aspects of the framework will be described in detail and in the context of this research, with its main research question:

*1. How can Corporate Sustainability be integrated into Business Process Management?*

*1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?*

*1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?*

The figure (Figure 19 Research Plan) below shows the research plan of this thesis. It sums up the methodological approach that is explained in this chapter. The first step of research is the structured literature review on corporate sustainability and business process management to be able to develop relevant research questions, as presented previously in Chapter 2 and Chapter 3. Based on the research question the research approach is defined including the research paradigm, the research design and the research methods. The collected data will then be analysed and interpreted and summed up in the findings. Finally, to answer the research questions the framework will be developed and validated, to ensure quality.

In the next section the research paradigm of this thesis will be discussed.

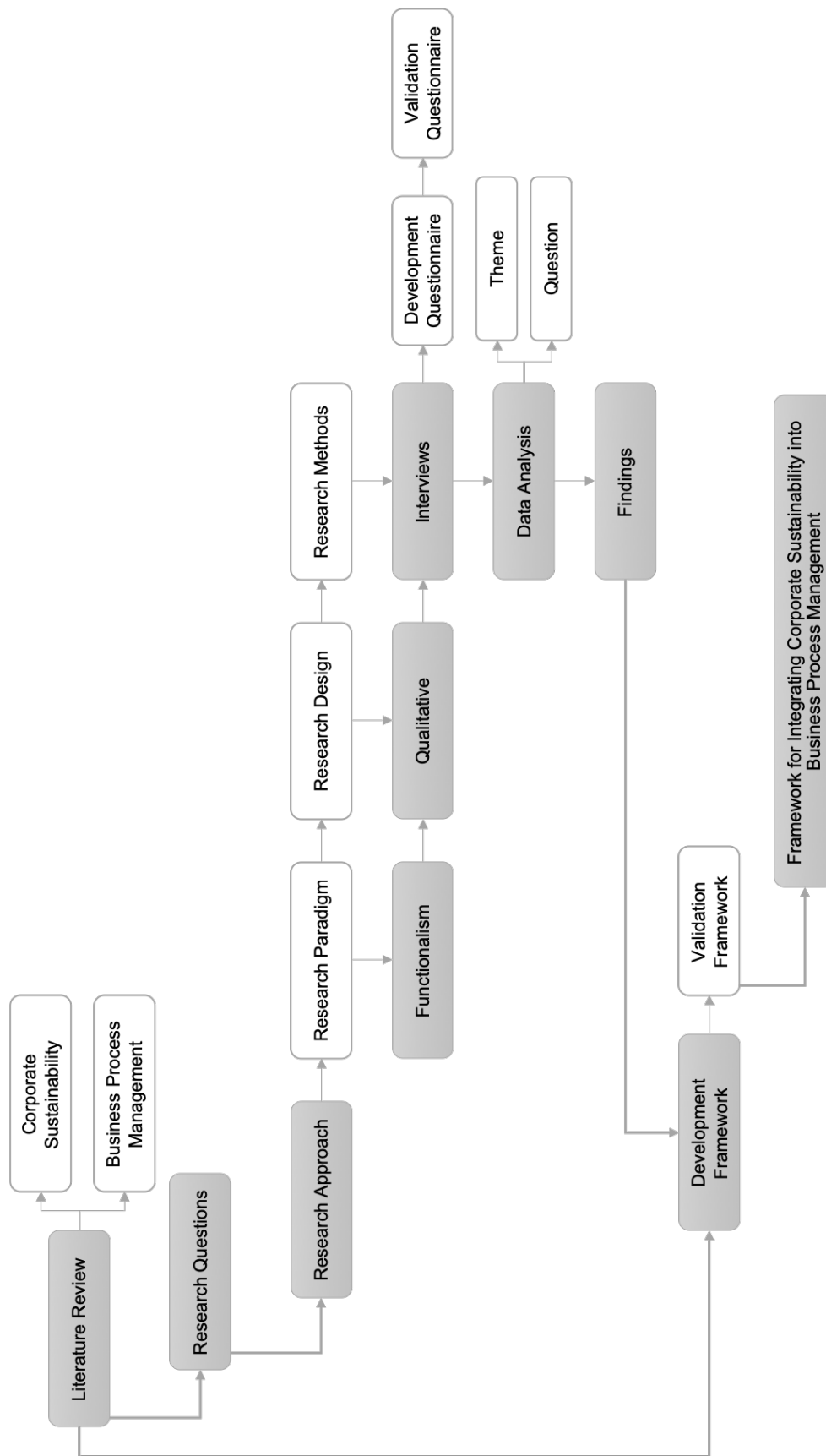


Figure 19 Research Plan



#### **4.1 Research Approach – Paradigm**

The approach to research is first defined by the philosophical worldviews of the researcher. The question that has to be asked is: How does the researcher think about reality and its examination? The role of the researcher and the design of the research, including the tools, the sampling, the data collection, and the data analysis depend on the assumptions of the researcher (Bortz and Döring, 2016).

According to Morgan (1980) a discussion of the underlying research paradigm is necessary since it defines and characterises the view of reality.

“All theories of organizations are based upon a philosophy of science and a theory of society” (Burrell and Morgan, 1979, p. XIII).

Burrell and Morgan (1979) as well as Kuada (2009) state that there are four assumptions that define a paradigm: ontology, epistemology, methodological assumptions and assumptions of the human nature.

Research always depends on the framework the ontology provides (Kirchner and Hoffmeister, 2005). Ontology stands for the assumptions the researcher makes about the nature of reality (Creswell, 2013, Easterby-Smith et al., 2012). Assumptions of ontological nature deal with the very essence of the phenomena that are being studied (Burrell and Morgan, 1979). Important questions concerning reality are: Is reality only in our imagination or is it independent? Does the researcher believe that there is causality or chaos? Are there intentional or causal explanations for reality (Bortz and Döring, 2016)? There are two main positions for the ontological assumptions, according to Burrell and Morgan (1979). On the one hand reality is seen as objective, as something that just exists. On the other hand, reality is seen as the product of individual cognition and is therefore subjective.

Epistemology is the next step towards the definition of an appropriate research design. It is about the assumptions of the researcher how reality is to be inquired, it decides how research is conducted (Bortz and Döring, 2016). Epistemology defines what forms of knowledge can be acquired, what is the truth and if knowledge is something that is obtainable or has encountered personally (Burrell and Morgan, 1979). It “raises the question as to whether it is possible for an external observer to “know” the truth about a specific social world to which he is a stranger, or whether the social world can only be understood by occupying the frame of reference of the individual actor whom the researcher seeks to study” (Kuada, 2009, p. 5).

Assumptions about human nature define how the researcher sees “the relationship between human beings and their environment” (Burrell and Morgan, 1979, p. 2). Two viewpoints are differentiated, human beings can be seen as the creators and controllers of their environment or they can be seen as controlled by their environment, which would mean that they and their experiences are a product of their environment (Burrell and Morgan, 1979). Most scientists take a position somewhere in between (Burrell and Morgan, 1979).

The methodological assumptions follow from the ontological, epistemological assumptions and the assumptions about the human nature (Burrell and Morgan, 1979, Kuada, 2009). They define the whole research design (Kuada, 2009).

These four sets of assumptions define the research paradigm. Burrell and Morgan (1979) define four types of research paradigms that are still used for the study of organisations. “Management research can draw useful heuristics for the development of theory in Burrell and Morgan’s (1979) schematic differentiations” (Callaghan, 2017, p. 70).

Burrell and Morgan (1979) developed four paradigms: radical humanist, radical structuralist, interpretive and functionalist. They are differentiated according to their approach towards social science, if it is subjective or objective, and according to their theory of society, if it is seen as regulated or as subject to radical change (Burrell and Morgan, 1979).

“To be located in a particular paradigm is to view the world in a particular way” (Burrell and Morgan, 1979, p. 24).

Before the four paradigms will be described the difference between subjective and objective as well as the difference between radical change and regulation will be explained in more detail.

According to Burrell and Morgan (1979) the subjectivist and objectivist approach are based on different ontological, epistemological, human nature and methodological assumptions.



Figure 20 The difference between the subjectivist and objectivist approach (Burrell and Morgan, 1979, p. 3)

In the ontology debate the differentiation between nominalism and realism is made. The nominalist position assumes that there is no real structure in the world, whereas the realist assumes the real world as being made up of hard, tangible and relatively immutable structures. The realist sees the social world in the same way as he sees the natural world, hard and concrete (Burrell and Morgan, 1979).

Anti-positivism and positivism are subject of the epistemological discussion. The positivist researcher sees himself as an observer. The positivist “characterizes epistemologies which seek to explain and predict what happens in the social world by searching for regularities and casual relationships between its constituent element” (Burrell and Morgan, 1979, p. 5). The aim of research under the positivist view is to gain new insights that can be added to the existing knowledge and to falsify hypotheses (Easterby-Smith et al., 2012, Burrell and Morgan, 1979). A researcher with a positivist worldview assumes that there are true answers (Easterby-Smith et al., 2012). In contrast to that the anti-positivism assumes that the social world can only be understood from the directly involved individuals’ point of view. Accordingly the researcher has to be inside and has to be part of the activities rather than an observer (Burrell and Morgan, 1979). There are further positions in the epistemological discussion.

The postpositive worldview represents the traditional type of research. Its goal is to identify the causes that determine different effects or an outcome. Usually it starts with a predetermined theory that is then either supported or dismissed after having collected the necessary data (Creswell, 2013).

Constructivists focus more on the individual. They believe that everyone develops an individual meaning of different experiences, thus a certain diversity of meanings exist that can hardly be categorised. In order to obtain and interpret the participant’s meanings, open ended questions are necessary. In contrast to the postpositive worldview the researcher does not start with a theory but rather develops a theory as the research progresses (Creswell, 2013).

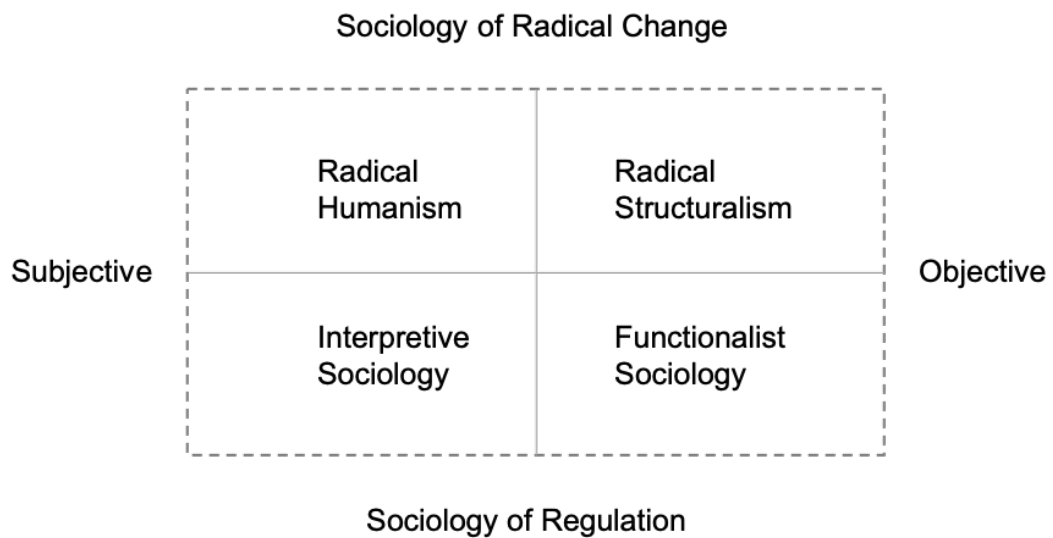
Thirdly the transformative worldview lies its focus on marginalised groups and puts its emphasis on social issues such as inequality or oppression (Creswell, 2013).

“Pragmatism [...] focuses on serving human purposes and thus simultaneously highlights the moral dimensions of organizations and the need for research to have practical value” (Wicks and Freeman, 1998, p. 123). It focuses on understanding a problem rather than on developing a theory or verifying/denying it (Creswell, 2013, Strübing, 2013).

The third differentiation between the subjectivist and objectivist approach is human nature. One distinguishes between voluntarism and determinism. Determinists suppose that the activities of human beings are determined by the environment. To see man as completely free-willed and autonomous is the point of view of voluntarism (Burrell and Morgan, 1979).

Burrell and Morgan (1979) see the methodological debate, which determines the four paradigms. The positions are ideographic and nomothetic. These two positions are based on the assumptions beforehand. Accordingly, the ideographic position is connected to voluntarism, anti-positivism and nominalism. It requires a close investigation, observing inside scenarios at first hand, without interfering with the subject’s development. The nomothetic position relies on previously defined protocols and quantitative techniques, such as surveys, questionnaires, personality tests and standardised research instruments (Burrell and Morgan, 1979).

Burrell and Morgan (1979) developed a model of four research paradigms, shown in Figure 21, which is also used in, for example, the paper of Mangan et al. (2004) or the paper of Kuada (2009).



*Figure 21 The four paradigms of Burrell and Morgan (1979) as revised by Mangan et al. (2004)*

The y-axis of the model of the four paradigms differentiates between regulation and radical change. The table below shows the main differences between these two positions.

The sociology of <b>regulation</b> is concerned with:	The sociology of <b>radical change</b> is concerned with:
<ul style="list-style-type: none"> <li>• The status quo</li> <li>• Social order</li> <li>• Consensus</li> <li>• Social integration and cohesion</li> <li>• Solidarity</li> <li>• Need satisfaction</li> <li>• Actuality</li> </ul>	<ul style="list-style-type: none"> <li>• Radical Change</li> <li>• Structural Conflict</li> <li>• Modes of domination</li> <li>• Contradiction</li> <li>• Emancipation</li> <li>• Deprivation</li> <li>• Potentiality</li> </ul>

*Table 5 The regulation - radical change dimension (Burrell and Morgan, 1979, p. 18)*

The differentiation between a subjectivist and an objectivist approach represents the x-axis in the paradigm model of Burrell and Morgan (1979). The y-axis results from the difference between radical change and regulation, see Table 5. In the context of Burrell and Morgan's research, regulation is meant in the sense of rules and laws, since they have a sociological background. They also see the positions regulation and radical change as opposite to each other. In the context

of this thesis the two positions are not quite opposite. Corporate sustainability can be reached through approaches that consider both sides. On the one hand regulations are needed to define sustainability goals and to define a sustainable behaviour, but on the other hand corporate sustainability also needs change. Radical change is one possible way, although gradual improvement seems to be more promising, since it allows the corporation and the people to adjust. So far sustainability is often mentioned without consequences for the corporate activities. The change will be an essential element of becoming a sustainable corporation. Accordingly, regulation and radical change are not opposite to each other in the context of corporate sustainability. They represent two different approaches towards corporate sustainability, that both need to be considered. However, in this thesis the focus will be more on the side of regulation, since it aims to develop a framework for the integration of corporate sustainability.

In the following the four paradigms will be explained. Since the functionalist paradigm is the dominant framework for the study of organisations (Burrell and Morgan, 1979) and it is the paradigm of this study it will be explained last.

#### *Radical Humanism:*

The radical humanism paradigm emphasises the need for radical change of existing social arrangements. It aims to “develop a sociology of radical change from a subjectivist standpoint” (Burrell and Morgan, 1979, p. 32). Research within this paradigm seeks to change existing social arrangements, since they see society as anti-human. According to the four debates about ontology, epistemology, human nature and methodology. The radical humanist paradigm can be classified as nominalist, anti-positivist, voluntarist and ideographic (Burrell and Morgan, 1979).

### *Radical Structuralism:*

In contrast to that the radical structuralist paradigm can be classified as realist, positivist, determinist and nomothetic (Burrell and Morgan, 1979). As well as the radical humanist paradigm, the radical structuralist paradigm seeks radical change within society. But in contrast to the radical humanist paradigm, this paradigm tries to form an objectivist standpoint (Burrell and Morgan, 1979). Researchers with this paradigm assume that society is characterised by conflicts resulting from political and economic crises. They believe that these conflicts make a radical change necessary. This research paradigm emphasizes structural conflicts, modes of domination, contradiction and deprivation (Burrell and Morgan, 1979).

### *Interpretive Sociology:*

According to Burrell and Morgan (1979) the interpretive research paradigm is characterised by the nominalist, anti-positivist, voluntarist and ideographic position. Research with an interpretive paradigm seeks to understand the nature of the social world from a subjective experience. This research paradigm has not generated much organisation theory (Burrell and Morgan, 1979). Accordingly, this research paradigm is not relevant for this research, since the aim of this research is the development of a framework for organisations to integrate corporate sustainability through business process management.

### *Functionalist Sociology:*

The most important, as already mentioned above, is the functionalist paradigm. This research paradigm is characterized by a realist, positivist, determinist and nomothetic point of view (Burrell and Morgan, 1979). Its focus lies on the understanding of society such that it creates new knowledge which can be



applied to solving real life problems. It is a highly pragmatic and problem-oriented approach that seeks to create practical solutions that can be put to use (Burrell and Morgan, 1979). Although this paradigm originated in social theory, it has often been used for the study of organizations. Kuada (2009) states that functionalism is very popular in economics, because organisations need to be aligned with the requirements of their environment to maintain effectiveness and therefore have to make adaptive structural changes. “Functionalist approaches emphasize how instrumental aspects of organizational life can be designed to run and regulate the organization” (Trujillo and Toth, 1987, p. 201). Researchers with a functionalist approach examine how organizational things affect organizational actions. Such things are for example, hierarchies, technologies but also business processes can be counted as those things. The major concern is the effectiveness and efficiency of organizations since they are connected with the financial bottom-line and by that with the long-term success of a company (Trujillo and Toth, 1987). Examples for research fields with a functionalist research paradigm are organizational effectiveness, research about lean management, six sigma and leadership studies.

This research is placed within management theory. Burrell and Morgan (1979) themselves established the connection between functionalism and management theory. They stated that the “classical management school as a whole are founded upon assumptions which characterise the most objectivist region of the functionalist paradigm” (Burrell and Morgan, 1979, p. 127). Functionalism is concerned with the formulation of management principles and with problems of organisation structure, leadership style and efficiency (Burrell and Morgan, 1979). Accordingly, this research can be placed within the functionalist paradigm.

Regarding the definition of Burrell and Morgan (1979), functionalism is characterised by empirical methods and methods that are as well used for research within natural sciences. It is as well characterized by a positivist point of view, which is strongly connected to quantitative research methods. But they also argue that the method should depend on the object under investigation. Corporate sustainability and the attempt to integrate it into business process management is rather new. Previous approaches in this area have not been sufficiently developed and tested to be able to apply deductive methods, where it would be necessary to define variables that can be tested. The integration of corporate sustainability still requires explorative research with the aim to develop theories. Engert et al. (2016) showed in their literature review on the integration of corporate sustainability into the business strategy and processes that studies up to now have been on a theoretical basis and are focused on very specific issues. Also no studies have been conducted that examine strategy development and the implementation of it in practice (Engert et al., 2016).

The position of the researcher also determines whether the researcher refers to deductive or inductive theory. Deductive theory means that a hypothesis is deduced from knowledge and some theoretical considerations. The hypothesis will then be empirically tested, first theory and then observations/ findings. In contrast, inductive theory derives a theory out of an observation and its findings (Bryman and Bell, 2011). To overcome this gap, inductive methods are the most appropriate ones for the research questions in this thesis. Most researchers do not just take one position (Easterby-Smith et al., 2012). The topic should be studied in its context and an emerging research design should be used (Creswell, 2013).

The pragmatic aspect of the functionalist research paradigm establishes the connection to corporate sustainability, which is the central element of this thesis.

Reitan (1998) states that the pragmatic philosophy can be especially helpful to environmentalism. Further, Norton (1999) sees pragmatism as a useful analogy to characterize sustainability because it never separates fact from value, which is especially important for research within sustainability (Norton, 1999). This research field is shaped by facts about environmental and social changes but also by values that should be given to the ecological, social and economic aspects. Fendt et al. (2008) stated that the traditional production of management knowledge is detached from praxis and does have a great influence on the actions of practitioners. Especially the management of sustainability is a very critical topic that demands immediate action. Consequently, the research regarding sustainability needs to be relevant and has to have an impact on the behaviour of practitioners. Pragmatism provides the necessary focus by formulating precise questions and providing answers in an empirical manner (Fendt et al., 2008). According to Wicks and Freeman (1998) the creation of scientific knowledge proves useful only when it facilitates the way people cope with the world or develops improved organisations. In addition, the impact of a theory is always determined by its practical consequences.

In unison with these beliefs, this thesis aims to make organisations more sustainable and supports the current debate on sustainability, since a fair share of responsibility in this discussion belongs to them.

## **4.2 Research Approach – Research Design**

Generally, there are three different types of research design: qualitative, quantitative, and mixed methods.

The comparison of quantitative and qualitative research methods, according to Wolf and Priebe (2003), addresses the basic question of how scientific research is carried out. Although the two directions of research differ fundamentally in some characteristics, this does not necessarily mean mutual exclusion. Rather there are many possibilities for method combination and integration, which are summarized under the generic term “mixed methods” (Kuckartz, 2012).

In general, quantitative research is about testing objective theories through examining the relationship among different variables that can be measured on instruments (Creswell, 2013). These methods are based on the positivist paradigm (Easterby-Smith et al., 2012). This research approach generates numbered data that can be analysed using statistical procedures (Creswell, 2013). Quantitative data can also be analysed in a qualitative way, as well as qualitative data can be analysed in a quantitative way, which is more often the case (Easterby-Smith et al., 2012). Quantitative methods are not suitable when the aim is to understand a process (Easterby-Smith et al., 2012), as it is in this research. In contrast, qualitative research is considered more interpretive, as it focuses on exploring and understanding social or human problems (Creswell, 2013, Reichertz, 2014). Instead of exploring humans and the environment with standardised methods, an attempt is made to grasp the subject and its social reality in all their complexity (von Wensierski, 2003). The goal of a qualitative approach is to develop questions, theories and procedures, therefore the researcher is interpreting the meaning of the collected data and tries to build inductively from particular to general themes (Creswell, 2013).

An attempt is made to depict reality based on subjective views in order to understand it (Flick, 2014).

The following table (Table 6) shows the main differences between quantitative and qualitative research (Bryman and Bell, 2011, Creswell, 2013).

Quantitative research	Qualitative research
<ul style="list-style-type: none"> <li>• Numbers</li> <li>• Researcher distance</li> <li>• Theory testing</li> <li>• Static</li> <li>• Structured</li> <li>• Generalization</li> <li>• Hard, reliable data</li> <li>• Macro</li> <li>• Artificial setting</li> <li>• Deductive</li> </ul>	<ul style="list-style-type: none"> <li>• Words</li> <li>• Researcher close</li> <li>• Theory emergent</li> <li>• Process</li> <li>• Unstructured</li> <li>• Contextual understanding</li> <li>• Rich, deep data</li> <li>• Micro</li> <li>• Natural settings</li> <li>• Inductive</li> </ul>

*Table 6 Differences quantitative and qualitative research (Bryman and Bell, 2011, Creswell, 2013)*

The two research designs, quantitative and qualitative, lead to different methods for the collection and evaluation of data (Hussy et al., 2013).

Common methods from the quantitative spectrum are the standardised survey, the non-participatory, structured observation, and the quantitative content analysis (Wolf and Priebe, 2003). Due to standardised procedures, a large number of investigation cases and the statistical evaluation method, quantitative methods are used in particular for the representative measurement and quantification of facts and for the validation of hypotheses (Hug and Poscheschnik, 2015). In addition, they are particularly well suited for comparing objective data over a period of time and deriving changes and tendencies from it (Hug and Poscheschnik, 2015).

Qualitative research methods are usually based on an inductive approach, which means that conclusions are drawn from repeated case-by-case observations (Balzert et al., 2010). This is done using open, exploratory methods, such as the qualitative interview or the qualitative observation. Unlike quantitative research methods, the qualitative approach is guided by the principles of openness and flexibility (Bortz and Döring, 2016).

Mixed methods are a combination of both approaches, where quantitative and qualitative data are collected, also philosophical assumptions and theoretical frameworks are involved in this research approach (Creswell, 2013). They allow deep insights to be gained, although it is challenging for the researcher to combine two different worldviews that are very different from each other (Easterby-Smith et al., 2012). The basic idea is that the use of both approaches help to gain a more complete understanding of a research problem (Creswell, 2013, Easterby-Smith et al., 2012).

For this study, a qualitative research approach will be selected. The conflict with the functionalist research paradigm is discussed previously in Section 4.1. Qualitative research is advisable when the researcher does not know which are the important variables that need to be examined, the research topic is new and/or the subject has never been examined in a specific context (Creswell, 2013, Padgett, 1998). The integration of sustainability into a company is still a rather new field of research, and a definition that depicts the whole complexity of corporate sustainability is missing (Lozano, 2015, Schaltegger et al., 2013). Due to this reason it is not possible to determine the important variables that would be needed for a quantitative research approach. The basic characteristics of qualitative research are that it is conducted in a natural setting, that the researcher is a key instrument regarding the data collection, that multiple data

sources and ways of data analysis can be used and that the participants' meanings are of great importance (Creswell, 2013, Padgett, 1998). The aim of this research is to overcome the gap between research and the needs of practitioners, because companies still struggle with the integration of sustainability (Kiron et al., 2015). Accordingly, the participants' perspective plays an important role in the context of this research. Qualitative research is also characterised by an emergent design and reflexivity (Creswell, 2013). Qualitative studies aim to be holistic (Creswell, 2013, Padgett, 1998).

Within qualitative research different possibilities exist, how research can be conducted. In the following, several approaches are introduced and discussed in the context of this thesis.

These possible approaches include Grounded Theory, Ethnography, Narrative Research, Qualitative Experiment, Action Research and Case Studies.

Grounded Theory, which originated in sociology, is about developing theories that are anchored directly in data the researcher collects (Hussy et al., 2013, Flick, 2011). The collected data, mostly interview, is later analysed using open, axial, and selective coding (Hussy et al., 2013, Creswell, 2013, Charmaz, 2015). In a process of permanent comparison selective categories are connected to form a theory. This approach ends when the addition of new cases, using theoretical sampling, does not add any modification to this theory (Hussy et al., 2013, Charmaz, 2015). The pragmatic position of this research "addresses the relationship between theorizing and practice" (Fendt et al., 2008, p. 473). Even though grounded theory tries to reduce the gap between theory and practice it is not applicable for this thesis, because its main goal lies in generating a new theory, which is not the goal of this work. Accordingly, a more detailed description of grounded theory is not going to be included.

Ethnography, which has its roots in both anthropology and sociology, represents another qualitative approach to research (Brewer, 2000, Hussy et al., 2013). It describes a method of viewing and describing a culture from its members' point of view. This culture should not be altered in any way by the research efforts (Hussy et al., 2013, Creswell, 2013, Brewer, 2000). The data, which is mainly collected through observations and interviews, is analysed by describing the respective culture and connecting themes (Creswell, 2013, Atkinson et al., 2001). Following from the above description, ethnography is not applicable to this thesis, because it does not try to observe or portray a culture.

Narrative Research, which stems from the humanities, tries to collect and reconstruct biographical recollections to examine an individual's life (Creswell, 2013, Andrews et al., 2013). This approach is mostly applicable to researchers who want to explore individual experiences (Andrews et al., 2013). The data is collected mostly through interviews or personal documents and is later analysed for stories or themes within the studied individual's life (Squire et al., 2014). Conclusively narrative research cannot be applied to this thesis, because it does not try to explore individual experiences.

The approach of phenomenology, which originated in philosophy, psychology and education, is best used if the researcher wants to gain knowledge about the nature of a certain experience, by interviewing different subjects who have had the same experience. Thus, phenomenology is not a suitable approach for this thesis. The data collection uses mostly interviews but reaches as far as using pieces of art for gaining information and analysing the essence of the experience in focus (Sokolowski, 2007, Smith, 2006).

With roots in psychology, law, political science and medicine, case studies is a holistic research approach, which is best used to give the researcher deep



knowledge about individual or a multitude of cases (Creswell, 2013, Bortz and Döring, 2016). A case study deals with current phenomena that are enquired empirically, always closely linked to its real-life context (Yin, 2014, Eisenhardt, 1989).

Besides using earlier theoretical propositions to focus the collection of data, multiple sources, such as interviews, observations, documents, and artefacts are used to gain as much data as possible (Eisenhardt, 1989, Eisenhardt and Graebner, 2007).

According to Yin (2014) the choice of research approach depends on the type of research question, the actual involvement of the researcher in behavioural events, and whether the focus lies on current or historical cases. Case Studies are best applied if the researcher tries to answer a “how” or “why” question, with little to no influence regarding the event studied, focusing on a present-time phenomenon (Yin, 2014). Although this thesis matches the profile described above, using case studies for the qualitative research is not precisely applicable since for most of the companies, only one source of information was available, that source being interviews. Even though other sources would be available, such as sustainability reports, this information always comes with a strong bias, since companies use these reports as advertising for their purposes and can thus not be relied upon as a true reflection of the current status of integration of sustainability. Furthermore, a larger number of interviewees per company would have been necessary to sufficiently describe a case.

One possible approach could be action research, which, in contrast to a purely positivist approach tries to create both knowledge about action as well as take action itself (Coughlan and Coughlan, 2002, Gummesson, 2003). The origins of action research date back to 1944 when Kurt Lewin, a German social science

researcher, first published the term “action research” (Reason, 2006). In 2001 Reason and Bradbury (2001) defined action research as “a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes. . . . It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.” In action research major organisational issues are studied not just on a theoretical level but in close proximity to the practitioners who are experiencing these issues on a daily basis (Coughlan and Coughlan, 2002, Reason, 2006). In general terms action research is comprised of an iterative cycle of planning a certain action or intervention, taking action, evaluating the results of the action taken and finally engaging in further planning (Coughlan and Coughlan, 2002).

Even though most of the characteristics of action research would apply to this thesis, certain key points are not applicable in the context of this research. In action research, the researcher takes action and does not simply observe the object of the study but additionally cooperates with the respective client personnel (Coughlan and Coughlan, 2002). In addition, after each round of action research the research modifies the developing theory. This is especially helpful, when working with the same group of people, confronted with the same problem over a longer period of time, just like Lewin was when investigating social relationships in work groups (Lewin, 1948). Furthermore, action research usually takes place in a single organisation, which allows the researcher to implement actions within that organisation. In conclusion, the idea of action research is a possible approach in this field of research, however the specific setting of this study, with

multiple organisations involved, did not allow iterative circles that are inherent to action research.

For this thesis a qualitative approach was chosen as described above. Within this research action research and case studies seem most suitable, although, due to reasons mentioned above, they cannot be applied in the way they are defined in literature. Similar to a case study with multiple cases, different companies were chosen for the interviews. This research was also carried out with a close connection to real-life context in mind. Also the studied event, in this case the integration of sustainability, was not influenced by the author of this thesis. However, the interviews remain the only source of information, which is why the research approach for this thesis cannot be labelled as a case study according to its previously described definition. As mentioned above, most of the characteristics of action research apply to the research approach of this thesis, as well. Especially the attempt to creating both knowledge about action as well as taking action and bringing together theory and practice. Despite the fact that the framework is designed to be put into practice, an actual application was not performed. This however, would be necessary, to fulfil the qualifications of action research alongside performing iterative research cycles. Since the time frame for the research was limited, both an application of the developed framework and repetitive research cycles with correlating adjustments to the framework could not be carried out.

### **4.3 Research Approach – Research Methods**

Within a qualitative research design, different options for data collection exist. Each of them has advantages and limitations (Table 7).

Data Collection Types	Advantages	Limitations
Observations	<ul style="list-style-type: none"> <li>• Researcher has a first-hand experience with participant</li> <li>• Researcher can record information as it occurs</li> <li>• Unusual aspects can be noticed during observation</li> <li>• Useful in exploring topics that may be uncomfortable for participants to discuss</li> </ul>	<ul style="list-style-type: none"> <li>• Researcher may be seen as intrusive</li> <li>• Private information may be observed that researcher cannot report</li> <li>• Researcher may not have good attending and observing skills</li> <li>• Certain participants may present special problems in gaining rapport</li> </ul>
Interviews	<ul style="list-style-type: none"> <li>• Useful when participants cannot be directly observed</li> <li>• Participants can provide historical information</li> <li>• Allows researcher control over the line of questioning</li> </ul>	<ul style="list-style-type: none"> <li>• Provides indirect information filtered through the views of interviewees</li> <li>• Provides information in a designated place rather than the natural field setting</li> <li>• Researcher's presence may bias responses</li> <li>• Not all people are equally articulate and perceptive</li> </ul>
Documents	<ul style="list-style-type: none"> <li>• Enables a researcher to obtain the language and words of participants</li> <li>• Can be accessed at a time convenient to researcher – an unobtrusive source of information</li> <li>• Represents data to which participants have given attention</li> <li>• As written evidence, it saves a researcher the time and expense of transcribing</li> </ul>	<ul style="list-style-type: none"> <li>• Not all people are equally articulate and perceptive</li> <li>• May be protected information unavailable to public or private access</li> <li>• Requires the researcher to search out the information in hard-to-find places</li> <li>• Requires transcribing or optically scanning for computer entry</li> <li>• Materials may be incomplete</li> <li>• The documents may not be authentic or accurate</li> </ul>
Audio-Visual Materials	<ul style="list-style-type: none"> <li>• May be an unobtrusive method of collecting data</li> <li>• Provides an opportunity for participants to directly share their reality</li> <li>• It is creative in that it captures attention visually</li> </ul>	<ul style="list-style-type: none"> <li>• May be difficult to interpret</li> <li>• May not be accessible publicly or privately</li> <li>• The presence of an observer may be disruptive and affect responses</li> </ul>

Table 7 Qualitative Data Collection Types (Creswell, 2013, p. 191 f.)

The comparison of the different data collection types shows not just the advantages and limitations of each type, it also shows that they should be used for different purposes and can be used under different circumstances. Carrying out observations in a manner that would produce reliable and sufficient data would require a long time of simply gathering data on the one hand and on the other hand it would be rather difficult to convince the needed number of participants to allow the degree of observation necessary. Especially in the context of competing businesses this is difficult to acquire and out of scope of this thesis.

There are no audio-visual materials, except for marketing purposes, on the integration of sustainability into a corporation. Accordingly, it is not a suitable data collection type for this research.

Concerning the collection of documents, sustainability reports and newspaper articles can be expected to be available for analysis. However, one has to consider that sustainability reports mainly serve marketing purposes and may not represent an independent source of information. With regard to newspaper articles, they are only available for major companies and they mostly do not report how sustainability is integrated into a company, but rather publish missteps such as environmental catastrophes, or misbehaviour, for example the Volkswagen emissions scandal (Simpson, 2018, Breitingner, 2016).

Interviews are a suitable method to collect data for this research. They allow to gather detailed information about the integration of sustainability. Although it has to be considered that all information is filtered by the interviewee and influenced by the presence of the interviewer.

To select the data collection type the general setting of the study is also of importance. The framework for research methods of Meredith et al. (1989) helps to identify the most suitable research method for this purpose. Two dimensions influence the selection of a research method. The rational/ existential dimension, which is about the viewpoint of the researcher, relates to the epistemological structure. The second is the natural/ artificial dimension, which is about which kind of information is going to be used in the research (Meredith et al., 1989). This research can be classified as interpretive, within the rational/ existential dimension, since it focuses on understanding the concepts of integrating sustainability. Within the second dimension two positions are possible, the object reality, where the researcher uses information gained from direct observation or the people's perceptions, where the researcher uses information gained from second source methods such as interviews or surveys. To answer the research questions, information about what has already been done needs to be gathered. Therefore, a direct observation is not possible. Accordingly, second source methods have to be used for this research. For this research the use of people's experience to gain new insights, seems to be the most appropriate.

Due to the above reasons, interviews represent the best possible way of collecting data for this research.

Qualitative interviews can be structured, unstructured or semi-structured. Unstructured interviews do not use a questionnaire or a guideline for the interview. The respondent talks freely and questions are asked dependent on the specific situation. The questions asked are always open questions which in contrast to a closed question allows the interviewee to answer freely without being restricted to previously defined answers. For this reason unstructured interviews cannot be compared (Bortz and Döring, 2016). This form of

interviewing is not used for this thesis, because it does not allow the researcher to present a comprehensible research process. Furthermore, it is difficult to make sure that all necessary data has been collected by the researcher.

Structured interviews are mainly connected to quantitative research, since they use a standardised questionnaire which contains closed questions (Bortz and Döring, 2016, Corbetta, 2003, Bryman, 2015). This allows the researcher to undertake a quantitative analysis of the given answers and facilitates a direct comparison between answers. Due to the standardised questionnaire there is no possibility to gain further background information to the given answers. In an explorative research area such as corporate sustainability to use of a standardised questionnaire including previously defined answers is not advisable since it is not possible to define a holistic set of response options beforehand.

Semi-structured interviews use a previously defined questionnaire, which provides a guideline for the interviewer but allows the interviewee to respond freely. The questionnaire includes mainly open question (Bortz and Döring, 2016, Corbetta, 2003). Even though it does not provide the same degree of comparability that is given by a structured interview it allows for a greater degree of comparison between the interviews than an unstructured does. Further semi-structured interviews have the advantage of being able to accommodate new ideas from the respondent and learn about things that are not asked exactly.

In the next section the development of the questionnaire for the semi-structured interviews with open questions will be described.

#### **4.3.1 Development of the Questionnaire**

The questionnaire needs to cover all necessary aspects that need to be researched, to be able to answer the stated research questions that are deduced from the gaps detected in the literature review. While developing the questionnaire it also needs to be considered that semi-structured interviews are going to be conducted, consequently the questions pose an orientation and should be formulated in a very general way to support a rich discussion with the interviewee.

For the development of the questions the critical incident technique will be considered. It makes use of key participants' experiences and offers the opportunity to go straight to the heart of the issue (Easterby-Smith et al., 2012, Saunders et al., 2009). The researcher is able to limit the events to those events that seem critical, influential, or decisive (Miles and Huberman, 1994). Essential features emerge from a content analysis of the described incidents (Bryman and Bell, 2011). This technique is originally a psychological technique and was developed by Flanagan (1954). He describes it as "a set of procedures for collecting direct observations of human behaviour in such a way as to facilitate their potential usefulness in solving practical problems" (Flanagan, 1954, p. 327). In the original psychology context this meant human behaviour needs to be observed and the observer evaluates the observations afterwards. In the context of this study this cannot be adapted perfectly. In the management context, the observation is replaced by interviews, because attempts to integrate sustainability are long-term projects most of the time. That is why the participant is asked to describe their experience about his or her attempts to integrate sustainability. The evaluation of these experiences is an essential part of the data analysis. This technique is able to identify possibilities for the integration of



corporate sustainability into the business process management. It facilitates to use the lessons learned from the practitioners. The researcher is able to learn from expertise and experiences. When converting the collected data into a framework, these entire critical incidents are taken into account.

The questionnaire is divided into three main areas, the first topic that needs to be discussed is corporate sustainability in general. The questions are mainly about the general understanding of corporate sustainability, also with the aim to secure a common understanding. The examination of the definition of corporate sustainability showed that a practical definition is still missing. The definitions found in the literature go back to Brundtland and Elkington. Although this includes the triple-bottom-line, literature still misses the holistic point of view on sustainability. To fill this gap the interview participants will be asked how the company defines corporate sustainability. Also, part of the first section of the questionnaire are questions regarding relevance of the topic to the company, goals, responsibilities, and already achieved improvements. The answers to the questions of the first section will allow to evaluate the motivation and aims behind the integration of corporate sustainability. At this point, the practical implementation is not the focus, hence further questions are necessary to answer the first research question, regarding the actual integration of corporate sustainability into companies.

The second section of the questionnaire aims to examine to what degree the business process management is established in the company. This question seeks to classify the answers regarding the integration of corporate sustainability into business process management.

The third part of the questionnaire is the most important with respect to the research questions. The topic of this section is the actual integration of corporate

sustainability into the business process management. First the respondents were asked to describe the link between corporate sustainability and business process management. This question aims, on the one hand, to evaluate if companies agree that a link between the topics exist, as described in the literature. On the other hand, the question will provide further details about how practitioners see the link between the topics. The following questions aim to provide the necessary information to be able to answer the research questions:

*Main research questions:*

*1. How can Corporate Sustainability be integrated into Business Process Management?*

*1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?*

*1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?*

*Sub research questions:*

*2. How do companies already integrate Corporate Sustainability?*

*2.1 What lessons have they already learned from the integration process?*

*2.2 What are the main difficulties and factors of success?*

Table 8 below shows all the interview questions and the research question(s) to which they are connected.

<b>Interview Question</b>	<b>Research Question</b>
How is Corporate Sustainability defined in your company?	2
To what degree is sustainability a relevant topic in your company? What is your motivation?	2
What goals does your company want to reach in the area of sustainability? How are these goals measured?	2
What has already been done to improve sustainability?	2; 2.1
Who is responsible for sustainability on the operative level?	2
What is your responsibility regarding Corporate Sustainability?	2
To what degree is your Business Process Management already established in your company?	2
To what degree are Corporate Sustainability and Business Process Management linked? Which processes have the greatest impact on improving Corporate Sustainability?	1; 1.1
What has already been done to improve sustainability through the integration into Business Process Management?	2.1; 1.1; 1.2
How did the projects of improving Sustainability go? <ul style="list-style-type: none"> <li>• Difficulties</li> <li>• Success Factors/ Requirements</li> </ul>	2.1; 2.2; 1.1
Is there anything you would have liked to know beforehand? What would have been helpful, under what circumstances would the project have been more successful?	2.1; 1; 1.1; 1.2
What would you do different if you had to manage a similar project again?	2.1; 1; 1.1; 1.2
Regarding a method, which would improve sustainability with the help of Business Process Management, what would be important to you?	1.1; 1.2

*Table 8 Correlation between Interview Questions and Research Questions*

The respondents were asked to describe their actual approach towards the integration of corporate sustainability. The success of these projects including difficulties and success factors were also subject of the questions in this part of the questionnaire. The lessons learned from improvement projects are also of interest in the interviews. Part of this enquiry is to ask what the respondent would like to have known beforehand, under what circumstances would the projects have been more successful, and what they would do differently, if they had to manage a similar project again. These questions are critical for the ability to

answer the research question; due to these reasons the questions have to be asked very openly and a lot of room needs to be provided for a discussion, to gather as much information from the respondents as possible. Lastly the interviewees were asked what would be important to them regarding a method to improve corporate sustainability with the help of business process management. This information also needs to be taken into consideration.

The interviews will help to overcome the detected gap in the literature review between what is developed theoretically in the literature and what is required by practitioners.

The complete questionnaire, after the validation of it, can be found in Appendix B. The validation of the questionnaire is subject of the next section.

#### **4.3.2 Validation of the Questionnaire**

The developed questionnaire was validated with the help of three different experts. Two experts were academics, two professors that are representatives for sustainability matters at the University of Applied Sciences Munich. The third participant is an expert from industry, who helps companies to produce a sustainability report. All three experts were asked to test the questionnaire with regard to the clarity, completeness and if the questions are answerable.

The first pilot, with one of the professors, yielded the following results:

It has to be made sure that the interviewer and the interviewee have the same understanding of business process management. The interviewee should be prepared, using the sustainability report when possible. Additional questions that can be asked:

- Which processes have the greatest impact on corporate sustainability?
- What relevance does corporate sustainability have?
- What is your responsibility regarding corporate sustainability?
- What are the most important business processes?

In summary, the expert recommended to ask more about details regarding corporate sustainability. And to identify the most important questions, in case the interviewee does not have enough time to answer all the questions.

As a result of the second pilot, another professor described the guideline as very good and definitely helpful to gather a lot of information about corporate sustainability. In addition, the professor pointed out to be clear about the fact that corporate sustainability is always used for marketing, even in companies that are not really sustainable. He also recommended to point out the focus of the

interview at the beginning of each interview and also to discuss the definition of business process management with the interviewee.

The pilot with the expert of the industry brought another perspective to the validation of the pilot. This expert also pointed out that sustainability is often only used for marketing and that it could be hard to find somebody who is able to talk about the integration of sustainability. A quality manager could be able to give this information. He advised to gather information about the companies and their approach and attitude towards corporate sustainability. The expert also had a look at the questions and had some suggestions for improvement. When asking about the goals regarding corporate sustainability, criteria and the system for the sustainability report should be included. The question regarding the activities in the area of corporate sustainability should be divided into the three areas of sustainability. And it should also be asked if the sustainability report is verified externally.

Referring to the results of the pilots, the interview guideline was revised where possible. Not all of the feedback could be integrated into the guideline. The first and the revised final versions of the questionnaire can be found in Appendix A.

#### **4.4 Data Collection**

For the interviews, different companies were selected that were already engaged in sustainability to improve the chances of getting a positive feedback to the interview requests that were send out via email. As a first step 49 companies were selected, mostly through contacts from different professors at the University of Applied Sciences Munich. The rest was acquired through internet research, matching the search term “nachhaltige Unternehmen Deutschland”. All of the companies have a location in Germany. Subsequently these companies were

examined more closely concerning their existing sustainability efforts by carefully scanning their websites for any information regarding that topic. In an ongoing process over the course of this research a total number of 21 companies were contacted. (The 28 companies that were not contacted did not present any activities regarding sustainability on their respective web pages and were thus primarily excluded from the research.) Of these, 15 agreed to the request and a total of 21 representatives were available for questioning. The relatively high rate of positive feedback from the contacted companies was probably due to the existing contacts these companies have with the University of Applied Sciences Munich in most cases.

To gain the best possible information about the sustainability efforts of the studied companies, the intention was to interview at least two or three different employees per company who are responsible for sustainability management. This approach aimed to allow triangulation of the results. A detailed definition and explanation of this term can be found in Section 4.7.

It was however only possible to interview three employees in one case and two employees in five cases. For the remaining cases only one responsible employee was available for questioning. In general, most of the companies do not have the capacity for cooperation with students. As the interviews showed, often companies do not have more than one employee who is responsible for sustainability management or has the required knowledge about the research area. Another possible reason for the low number of employees made available per company could be the fact that the companies did not receive any incentives for their participation to avoid the “incentive effect” that could produce biased answers (Head, 2009). In addition, it was not possible to conduct more than two separate interviews within a single company due to limited resources on the part

of the corporations. These limitations did not allow a true triangulation of the data even though different viewpoints could be gathered within multiple companies.

In five cases two employees per company were available for questioning, however no separate interviews could be held because of scheduling difficulties.

This did not allow a detailed comparison between several representatives within a single corporation and thus an in-depth triangulation of the data was not possible. However, it did provide a bigger picture and allowed the researcher to observe different perspectives from each company, which made a more detailed analysis possible than only one interviewee per company would have.

The potential candidates, responsible persons for sustainability, were contacted through email, including a document with information about the researcher, the research, and about the planned interview (Appendix D). The interview guideline was sent beforehand, so the interviewee had the possibility to prepare.

The interviews took place between the 9<sup>th</sup> May 2017 and the 5<sup>th</sup> October 2017 and were conducted in German, because all the interviewees were German native speakers. Fifteen interviews were conducted on-site, five by phone and one via videoconference. The interviews ranged between 45 and 90 minutes and were audio recorded and fully transcribed if permission was granted. In total 12 hours of interviews were recorded, not including two interviews, where no permission to record was granted. The transcripts were sent to the interviewees to ensure the quality and to give the interviewee the possibility to check their answers and statements.

Of the 21 interviewees, nine were responsible for corporate sustainability on a strategy level, 15 were responsible on the operations level, and seven interviewees were not directly responsible for corporate sustainability.



The number of interviews that needed to be conducted was determined throughout the course of research. A characteristic of qualitative studies is that they are open-ended and unpredictable. This leads to the fact that it is not possible to determine the number of interviews that is needed in advance (Padgett, 1998). However, another indicator will help to define the number of interviews. Gummesson (2003) defined for qualitative research to continue until no new information is forthcoming. This was applied in this research and the process of acquiring new interview partners was ended at 21 interviews.

Table 9 below shows more descriptive information about the sample of the first phase of research.

		<i>Industrial Sector</i>	<i>Number of Employees</i>	<i>Interviewee Position</i>	<i>Interviewee Seniority</i>
Company A	A	Communication Technology	> 10,000	Manager Sustainability	11 years
Company B	B1	Commercial Vehicle Industry	> 290	Product and Marketing Manager	7 years
	B2			Industrial Safety Officer	5 years
Company C	C1	Public Sector	> 9,000	Logistic Manager	34 years
	C2			Quality Manager	33 years
	C3			Quality Manager	18 years
Company D	D	Building Sector	> 4,600	Manager Sustainability	11 years
Company E	E	Aviation Industry	> 9,000	Corporate Communication and Public Affairs	18 years
Company F	F	Chemicals Industry	> 52,000	Executive Safety Engineer and Environmental Officer	25 years
Company G	G1	Automobile Industry	> 12,000	Director of Global PLM	3 years
	G2			Energy Officer	5 years
Company H	H	Packaging Industry	> 24,000	Manager Environment	15 years
Company I	I	Defence Industry	> 1,300	Head of Business System Management	4 years
Company J	J1	Pharmaceutical Industry	> 94,000	Head of Security, Health, Environment and Quality Management	19 years
	J2			Manager Environment	30 years
Company K	K1	Machine Building Industry	> 2,000	Vice President SCM	7 years
	K2			Logistic Planner, Energy Manager	4 years
Company L	L	Chemicals Industry	> 17,000	Manager Sustainability	23 years
Company M	M	Public Sector	> 1,500	Sustainability Management	6 years
Company N	N	Electronic Industry	> 11,300	Project Manager CSR	no information
Company O	O	Transport Industry	> 25,000	Head of Corporate Sustainability	17 years

Table 9 Description of the Sample - Interviews

## **4.5 Data Analysis**

The next methodological step is the data analysis. A general issue with data that has been derived from qualitative analysis is the question whether it can provide the researcher with results that allow for a significant statistical generalisation (Joffe and Yardley, 2003, Thomas and Harden, 2008). In order to tackle this problem thematic analysis has become a mainstay for qualitative analysis (Joffe and Yardley, 2003, Thomas and Harden, 2008, Braun and Clarke, 2006, Boyatzis, 1998, Creswell, 2013). Even though any interpretation of data is influenced by the researcher's viewpoint, thematic analysis is viewed as independent of any particular theory or epistemology (Braun and Clarke, 2006). Its purpose lies in identifying, analysing and reporting themes within data, alongside a description and interpretation of the data set on hand (Braun and Clarke, 2006, Boyatzis, 1998).

In contrast to content analysis, which merely provides a numerical description of the responses based upon categories that have been established beforehand, thematic analysis adds the element of analysing their meaning in context (Joffe and Yardley, 2003).

The basis of a thematic analysis lies in coding the available data. Coding means that texts are split up into segments and they are categorised referring to a coding system developed from the texts (Creswell, 2013). Before beginning to code, the researcher needs to decide on the unit of coding. This could either be line-by-line coding, coding sentences, speaker turns, whole interviews, or articles (Joffe and Yardley, 2003).

The term code can be used synonymously with themes, describing meaning and content of the parts of data that have been analysed (Thomas and Harden, 2008,

Joffe and Yardley, 2003). Additionally a theme or code should always be related to the underlying research questions (Braun and Clarke, 2006). The codes that have been gathered from the set of data can then be grouped into a hierarchical order which itself can lead to another set of codes to group codes that were defined in the first turn of coding (Thomas and Harden, 2008, Creswell, 2013). The analysis of the generated themes can be either mainly quantitative, exploring correlations between themes, comparing groups, or even performing a multiple regression, exclusively qualitative, or a combination of both to explore seemingly more important themes in more detail (Joffe and Yardley, 2003).

For this thesis the analysis was mainly qualitative, due to the relatively low number of total interviews. Nonetheless the initial codes that were derived from the line-by-line coding were counted and discarded in the second round of coding if only named once, with the exception of codes highly relevant to the main research questions.

The danger with coding lies in abstracting themes from their appearance in reality, since coding and the interpretation of said codes are heavily influenced by the researcher's perspective and own theoretical background (Joffe and Yardley, 2003). These appear to be a possible downside in coding that could be mitigated by using inter-rater reliability checks. In that case a group of researchers would code independently of one another and the resulting codes would be compared. Finally a set of codes would emerge that all researchers could agree upon and that would possibly give a more bias-free account of the coded data (Joffe and Yardley, 2003, Thomas and Harden, 2008).

In the case of this thesis this was not possible since a PhD thesis is an individual piece of work. With regards to the small sample size of this thesis only a descriptive form of thematic coding seems reasonable, since a dependable statistical generalisation cannot be achieved with this amount of interviews (Joffe and Yardley, 2003). To get a deeper understanding of what themes, issues, and experiences companies have in the area of sustainability a descriptive coding was carried out with the interview transcripts serving as the available data set.

Each individual transcript was coded line-by-line to gain a general overview of the underlying themes. This initial coding was done in the original German transcripts. Each individual statement that contained potential relevance to the research was extracted. To extract as much information as possible in the first stage of coding, whole statements rather than single expressions or words were taken from the transcripts of the interviews. This produced a total of seventeen pages of statements made by the interviews, all in German language. In the following these statements are going to be referred to as codes.

Due to the high volume the extracted codes were not translated in order to keep the volume of this thesis at a reasonable level. This was also done in German to avoid a loss of information in the process of translation. Since multiple mentions of one category within a single interview do not necessarily indicate a higher relevance (Joffe and Yardley, 2003, Braun and Clarke, 2006), codes with the same meaning were summarized. Subsequently all codes that could not be directly related to the research questions of this thesis were excluded as well.

In the following a categorisation of these codes into overarching themes was undertaken. The codes were partly paraphrased, without impairing their essential meaning, to facilitate the analysis of the amount of times they were named by the

interviewees. If multiple codes from different companies carried the same meaning they were written down as a single code with multiple mentioning in the quantitative analysis. Finally, the codes were translated into English. After another double-check regarding the relevance of the generated themes and their relation to the research questions, a thematic map of the superordinate themes and their respective sub-themes was created.

The second step in the data analysis was the proceeding of the interview transcripts. Therefore, each transcript was analysed to match the statements of the respondents to each of the thirteen questions of the questionnaire. For each question the whole transcript had to be scanned, due to the form of a semi-structured interview and the fact that respondents told a story rather than answering one question after the other.

The results were put into an Excel spreadsheet to facilitate a comparison between the different interviewees regarding individual questions. In addition, the spreadsheet allowed the researcher to gain a better understanding of each interviewee's individual position regarding the research questions.

For each question the answers were compared, and differences and similarities were worked out. In this manner it was possible to work out the main topics and issues.

Since the Excel spreadsheet described above is too large to be put into the appendix, the original content, including the original transcripts, can be found in text form in Appendices F to T.

The main results of the data analysis are the identification of the main topics and issues, and also common procedures towards the integration of corporate sustainability into the company and the business process management. It also

makes clear what the main difficulties and factors of success are regarding the integration. These insights facilitate the development of a framework for the integration of corporate sustainability into business process management.

The specific description of the specification, the development of the framework and the framework itself can be found in Chapter 0. First, a list of requirements was created based on the results of both the data analysis and the literature review. The following development of the framework was guided by the previously defined requirements in combination with existing tools.

In the next section of this chapter the concept for the validation of the framework that is going to be developed will be explained in detail.

#### **4.6 Validation of the Framework**

To finish the methodological part of this study the resulting framework needs to be validated. Validation is an essential criterion for quality in qualitative research (Bortz and Döring, 2016). Through, for example, interviews the research will be able to confirm the results (Bortz and Döring, 2016). In the context of this research the validation aims to confirm that the developed framework will serve the purpose of integrating sustainability into business process management. Several methods exist for the validation of a framework, e.g. case studies, workshops or interviews. For validation, people to whom the research area is of relevance will be asked to validate the developed framework, this means the strategy of member checking will be applied, which means that the participants are allowed to check the statements they gave to increase the credibility and validity of the gathered data (Creswell, 2013, Padgett, 1998). To be sure that the framework serves its purpose it has to help these participants to better understand the problem of operationalisation of corporate sustainability.

Thomas and Tymon (1982) presented five properties of relevant research in their seminal work. A semi-structured interview guideline with open questions for the validation was developed in line with these properties. The overall interview guideline can be found in Appendix C.

In the following, five properties will be presented including the interview questions that serve the purpose to assess the value of the framework.

The first property is “descriptive relevance”, which refers to the precision of the description of the research findings and incidents that have emerged from the collected data (Thomas and Tymon, 1982).

Relevant interview questions to assess descriptive relevance include:

- Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?
- Is there anything relevant missing?

“Goal relevance” relates to the aim, that the research outcomes serve the purpose required by practitioners (Thomas and Tymon, 1982).

Relevant interview questions:

- Does the framework help to integrate sustainability on an operational level?
- Does the framework help to overcome the existing difficulties?
- Does the framework meet the identified requirements?

This refers to the requirements that have been identified in the conducted interviews.



The third property is “operational validity”, this means if the practitioners are able to apply the developed theory, respectively are able to implement the according actions (Thomas and Tymon, 1982).

Relevant interview questions:

- How would you assess the applicability of the framework?

“Nonobviousness”, the fourth property defined by Thomas and Tymon (1982), “refers to the degree to which a theory meets or exceeds the complexity of common sense theory already used by practitioners” (Thomas and Tymon, 1982, p. 348).

Relevant interview question:

- Does the framework help to improve your actual approach towards the integration of sustainability?

Lastly, the developed theory should solve a problem that is still relevant to practitioners (Thomas and Tymon, 1982).

Relevant interview question:

- Is the integration of corporate sustainability still a relevant problem for practitioners?

The answers will be measured on a quantitative scale, a Likert scale, to be able to compare them. The reasons for the assessment will also be documented to give them a broader context.

The results of the framework validation will be described in Chapter 6.

#### **4.7 Quality Criteria for Qualitative Research**

Cassell et al. (2009) conducted a survey to identify the most relevant skills a researcher conducting qualitative research should have. These skills provide the necessary foundation to achieve good quality in qualitative research. The researcher has to be able to conduct a data analysis that is characterised by transparency and consistency (Cassell et al., 2009). The researcher should be consistent concerning methodology, methods and analysis (Cassell et al., 2009). Besides persuading the audience of the researcher's trustworthiness through logic and coherent arguments, a reasonable and just criticism as well as an evaluation of previously conducted research by other authors should be expressed (Cassell et al., 2009).

The most common criticism of qualitative research is that it is too subjective, due to the fact that the researcher is part of the data collection. It is also difficult to replicate, has problems of generalization and a lack of transparency (Bryman and Bell, 2011).

To meet this critique of qualitative research, different quality criteria have been developed. On the one hand, quality criteria are deduced from quantitative research like reliability and validity. On the other hand researchers developed a specific set of quality criteria for qualitative research (Bortz and Döring, 2016). The problem with these is that a very high amount of different sets exist and the research community has not been able to agree on one consistent catalogue of quality criteria (Bortz and Döring, 2016).

First of all, the quality criteria reliability and validity will be looked at. Reliability is a concept that cannot be applied to the same degree in qualitative research as it can be applied to quantitative research (Long and Johnson, 2000). It is about the standardisation of the data collection instruments used in the research (Long and Johnson, 2000). A characteristic of qualitative research is the emerging research design, which is contradictory to the concept of reliability. In this case the questionnaire itself stayed the same through the entire research process to ensure the necessary reliability and reproducibility. However, the interviewer skills of the author of this thesis improved as the research went on. This development represents a characteristic which cannot be measured or documented sufficiently. However, to meet this downside the exact transcripts of the interviews are presented in the appendix to allow the reader to comprehend the improvement of the interviewer.

Validity means that the researcher assures the accuracy of the findings. To improve this, two strategies seem most suitable: triangulation and member checking (Creswell, 2013, Padgett, 1998). Member checking means to let the findings be checked by the participants (Creswell, 2013, Padgett, 1998). This attempts to ensure that the researcher has correctly understood the view of the participant. In the context of this thesis, member checking was acquired by sending each interviewee the transcripts of the interview. Additionally, the validation of the framework was carried out in cooperation with participants of the interviews that led to the development of the framework.

The second strategy is more complex. Triangulation means to use multiple viewpoints on one question to increase the accuracy and create a more complete, holistic, and contextual portrayal for the units under study (Jick, 1979). This is particularly important when studying an organisation, since different interviewees

may have access to different information that builds up to give a fuller picture than any individual may provide. The opportunities of triangulation are more confidence about the results, new ways of capturing a problem and enriches the explanation of the research problem (Jick, 1979). This fits to the aim of this research to examine the integration of corporate sustainability into the business process management and to develop a method for it. The main disadvantage of this method is that replication is exceedingly difficult. Nevertheless, the advantages predominate and triangulation encourages productive research (Jick, 1979). For this thesis triangulation was applied, where possible, by interviewing multiple employees per company.

The most discussed catalogue of quality criteria for qualitative research is the catalogue of Lincoln and Guba. They name the four criteria: credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985).

Bortz and Döring (2016) provide an overview of Lincoln and Guba's four quality criteria including strategies to secure them. In the following, a summary of this overview will be provided and the strategies will be selected that seem most appropriate for this study.

Credibility requires that all results and interpretations on basis of the collected data need to be reliable (Lincoln and Guba, 1985). An extensive collection of data including the application of triangulation will help to secure credibility. Further member checking is an appropriate strategy for this purpose (Bortz and Döring, 2016).

Schou et al. (2012) provide a checklist to secure credibility (Schou et al., 2012, p. 2091):

- “The purpose is described clearly
- The method is described
- Arguments for choice of method have been made
- The method suits the purpose
- There is a description of how data were registered
- Triangulation has been applied
- The research process is described.”

As already mentioned, member checking and triangulation were applied as far as possible. Furthermore, the research approach and the selection of the research method is described in detail in Chapter 4.

The second quality criterion ‘transferability’ means that results and conclusions of the research can be transferred to other contexts (Lincoln and Guba, 1985). To secure transferability rich descriptions are necessary, that cover the selection of informants and sources, description of the informants and arguments why these have been selected, description of the context, and the relationship between the researcher and the context (Schou et al., 2012). Transferability describes a similar concept to generalisability. Generalisability means the ability to apply the concepts and results of the study to other situations than the ones studied (Huberman and Miles, 2009). To meet this requirement, Section 4.4 provides a detailed description of the collection of data that was used for the development of the framework. From the author’s perspective it is difficult to judge the degree of fulfilment of transferability, since the field of research is very specific.

Dependability describes that all steps of the research process are documented and comprehensible (Lincoln and Guba, 1985). This criterion can be connected with the criterion reliability of quantitative research. To secure dependability it is necessary to describe the logical connection between data and themes, to describe the process of analysis, to clearly describe the findings, which need to be credible, to include quotations, and to have an agreement between findings and the conclusion (Schou et al., 2012). To provide the necessary dependability a rich description alongside a detailed documentation of the data analysis and interpretation is presented in Chapter 5.

The last quality criterion is confirmability, which means that any subjectivity is kept out (Lincoln and Guba, 1985). Also for this criterion a checklist is provided (Schou et al., 2012, p. 2091):

- “The researcher has described his background and perceptions or pre-understanding
- There are references to theories
- Description of whether themes were identified from data or formulated in advance
- It is described who conducted the study
- It is described how the researcher participated in the process
- The researcher has described whether his/ her position is important in relation to the findings.”

In this research all practical steps were taken to ensure the highest possible degree of confirmability. The background and research paradigm of the researcher is described, as well as the theoretical positioning of the research. Further, the process of the literature review is described in detail. All steps of the

methodological approach are documented clearly and were performed by the researcher herself. However, in qualitative research a certain degree of subjectivity cannot be avoided entirely, since the interpretation of data is always subjective to the researcher's individual background. Nonetheless the entire research process, starting with the literature review, followed by methodology, data collection, and data analysis is described holistically.

Conclusively the above-named quality criteria need to be considered during the entire research process, when conducting qualitative research, to ensure a high quality.

In this chapter different research paradigms, research designs and research methods are discussed. This research follows a functionalist approach, using a qualitative research design that combines parts of action research and case studies. Semi-structured interviews were selected as the most suitable research method. The development of the interview guideline and its validation is presented. With the use of the developed guideline, 21 interviews were conducted. The interviews were transcribed and analysed with two different methods, thematic analysis and analysis according to the interview questions.

This chapter concludes with the description of the validation of the developed framework and a discussion of the quality criteria that are applied to qualitative research.

In the next chapter the results of the data analysis, based on the methods described in this chapter, are going to be presented in detail.

## **5 Results Interviews**

In this chapter the results of the conducted interviews will be described. The first section deals with the results of a thematic analysis, using a thorough coding of the gathered data. In the second section of this chapter is the data analysis, which links the gathered data directly to the questionnaire that was used for the semi-structured interviews. Finally, the main results of the data analysis are presented.

### **5.1 Data Analysis Part 1: Coding**

In order to provide an appropriate analysis of the gathered data a thematic analysis, using coding, was carried out. When analysing qualitative data, a thematic analysis pays more attention to the qualitative aspect than a content analysis, which describes the data set numerically (Joffe and Yardley, 2003).

The main goal of coding lies in the identification and analysis of themes within the data set at hand (Braun and Clarke, 2006).

A detailed description of the coding process can be found in section 4.5. The figure below displays the main steps of the thematic analysis as described in section 4.5.



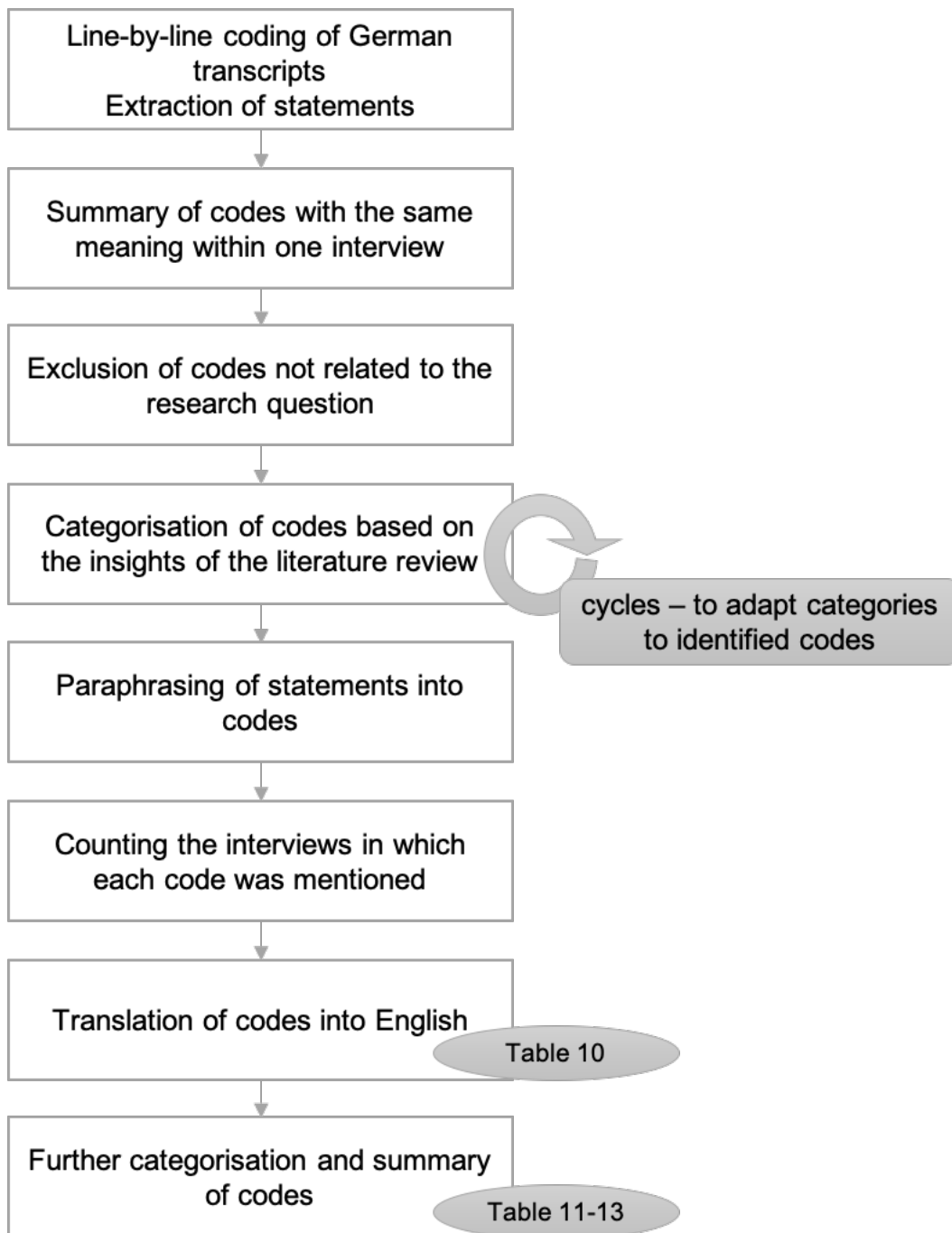


Figure 22 Coding Process

In the first stage of coding for this thesis, a line-by-line coding was carried out, using the original transcripts in German language. Each transcript was scanned for statements with relevance to the research field. Once a relevant statement was identified it was written out in a separate Word document. In total the line-by-line coding produced seventeen pages of codes. This document, in original German language can be found in Appendix E. To avoid a loss of information in

the initial phase of coding, complete statements, rather than single expressions or single words were extracted from the data. In the following the extracted statements are referred to as codes. A translation was not carried out at this point to mitigate the risk of losing essential information in the process of translation.

In the next phase, codes that were not closely related to the research questions were also excluded from further analysis.

Subsequently the codes were grouped into different overarching categories. In order to facilitate that process, the codes were partly paraphrased, without impairing their essential meaning. Within each category the number of times a code was mentioned was counted. If multiple codes from different companies carried the same meaning they were written down as a single code with multiple mentioning in the quantitative analysis. Codes that were named multiple times within a single company were only counted once for the analysis. Since multiple mentions of one category within a single interview does not necessarily indicate a higher relevance (Joffe and Yardley, 2003, Braun and Clarke, 2006). Accordingly, all codes were treated equally important in the further analysis, with the exception of codes that were only mentioned once, since these topics were only relevant to one company. Subsequently they were viewed as specific to the respective organisation. Finally, the codes and categories were translated into English. An overview of the results of this step can be seen in Table 10.

<b>Category</b>	<b>Codes</b>	<b>Fre- quency</b> (number of interviews mentioning)
Economic Aspects of Sustainability	Sustainability Efforts cause Costs	6
	Business Case	6
	Sustainability Efforts reduce Costs	3
	Economic Bottom-Line most important	3
	Economic efficiency of sustainability projects	5

	Economic success depends on sustainability	1
	Sustainability more important than economic success	1
Legal Aspects of Sustainability	Compliance with legal requirements	13
	Laws can ensure sustainability	2
	Processes have to ensure compliance with legal requirements	1
	Reporting because of legal requirements	1
	International laws would ensure competitiveness	1
	Sustainability is more than legal compliance	1
Certification	ISO certification	13
	EMAS certification	1
Reporting	Sustainability report	8
	Sustainability report for external communication	3
	No sustainability report	3
	GRI Reporting	2
	Monthly reporting of sustainability KPIs	1
	Progress report on sustainability goals	1
	Sustainability report because of competitors	1
	Dow Jones Sustainability Index	2
	Sustainability report for top management	3
Internal Sustainability Communication	Flyer	1
	E-Mails	1
	Scoreboard	1
External Sustainability Communication	Web	1
	Sustainability report	1
Sustainability Goals	Sustainable production process	1
	Sustainable products	1
	Cradle-to-Cradle	1
	Deduced from SDGs	1
	Consistent quality	2
	Sustainability Goals qualitative	1
	Products that support sustainability	1
	Sustainability not by retrospective compensation	1
	Financial and non-financial goals	1
	Sustainability as primary goal	1
	3 types of goals: Environment, employees, compliance	1
	Innovations for sustainability	3
	Balance of cost and benefit	1
	Balance of chances and risks	1
	IT for Sustainability	1
Social Sustainability	HR responsible for social sustainability	3
	Employee loyalty through social sustainability	2
	Focus on employees	2
	Human Rights	3
	Diversity	2

Social Sustainability Goals	Work-Life-Balance	4
	Support of developing countries	4
	Occupational Safety	4
	Health management	3
	Volunteering	1
	Donation	1
	Employee Development	2
	Refugee Aid	1
	Support immediate environment	2
	Support of employees in all areas of life	2
	Consumer protection	1
	Fulfilment of customer requirements	2
	Support of society	1
Ecological Sustainability	Ecologic goals primary	5
	Difficulties with the measurement of ecologic goals	2
Ecological Sustainability Goals	Use of renewable energy	2
	Climate protection	8
	Energy efficiency	6
	Resource efficiency	2
	Noise reduction	1
	Reduction of air travels	1
	More efficient company cars	1
	Efficiency-programmes	1
	Use of renewable resources	1
	Avoidance of hazardous materials	2
	Recyclability of products	1
	Eco-Design	1
	Reduction carbon-footprint	1
	Reduction distances	1
	Reduction component count	1
	Reduction diversity of materials	1
Definition Sustainability Goals	Stakeholder analysis	7
	SWOT-Analysis	1
	Top-Down from the company strategy	19
	Bottom-Up	1
	Defined process for the definition of goals	2
	Same goal definition process for all kind of company goals	1
	Employee survey to define social sustainability goals	1
	Consideration of internal and external interests	2
	Definition of challenging sustainability goals	1
	No overall sustainability goal	1
Conflicting goals	Customer requirements and sustainability	3
	Balance of elements of TBL	8
	Product requirements and sustainability	1
Strategy for Sustainability	Sustainability through environment strategy	1
	Strategy for social sustainability	1
	Sustainability as part of the company strategy	5

	Sustainability Road Map	3
	Sustainability in all processes	1
	Sustainability in all products	1
	Create a vision for sustainability	1
Sustainability areas of activity	Research and Development	4
	Environment	2
	Human Resources	3
	Society	2
	Supply Chain	8
	Energy	1
	Water	1
	Resources	1
	Waste	1
	Entire company	4
Definition of Sustainability	TBL	13
	SDGs	5
Drivers for sustainability	Legal requirements	13
	Customer	10
	Image improvement	4
	Stakeholder	4
	Competitive advantage	10
	Responsibility	5
	Intrinsic	14
	Contribute to SDGs	2
	Trustworthiness	1
	Long-term influence on economic success	3
	Sustainability as new business area	2
	Added-value through sustainability	2
Monitoring	Audits	8
	Use of a monitoring-system	3
	Controlling of goal attainment	3
	Continuous tracking	1
	Monitoring of side effects of sustainability efforts	1
	KPIs for sustainability goals	3
	Difficulties with to find KPIs for sustainability	1
	KPIs are necessary for sustainability	1
	Mostly ecological KPIs	1
Challenges for the Integration of Sustainability	Create a consciousness for sustainability	11
	Integration into existing processes	3
	Business process management for sustainability	2
	Availability of resources	13
	Motivation of employees	11
	Differences between countries	5
	Monitoring of sustainability	2
	Definition of realistic goals	1
	Implementation throughout supply chain	2
	Acquisition of information	1
	Development from reactive to proactive	1

	Justification of sustainability toward stakeholders	1
	Transdisciplinarity	2
	A system to ensure the consideration of sustainability at any time	2
	The bigger the company the harder the integration of sustainability	1
	Readable display of business process complexity	1
	Avoid increase of management system complexity	2
	Consider continuous change of sustainability	3
	Development sustainability strategy	1
	Enough time for the integration	5
	Definition of KPIs for sustainability	4
	Focus on all three parts of the TBL	2
	Sustainability benchmark	3
	Bureaucracy in Germany	1
	Focus on chances than risks	1
	Flexibility	1
Success Factors for the Integration of Sustainability	Communication	16
	Corporate culture	2
	Responsibilities	2
	Tools for the integration	3
	Sufficient information	2
	Sustainability manager	4
	Integration into business processes	6
	Corporate commitment	14
	Management commitment	9
	Systematic monitoring	6
	Pressure	2
	Visibility of goals	3
	Creativity	1
	Visible leadership	1
	Integration into management system	1
	Exchange experiences internal and external	10
	Trustworthiness	2
	Iterative	2
	Sustainability as integral part of the company	3
	Scheduling	1
	Small steps	1
	Change existing routines	1
	Top-Down	2
	Consideration interfaces	3
	Consideration company characteristics	3
	Trainings	1
	Consideration of the environment	1
	Specific targets	1
	Implementation within strategy	2
	Internal code of conduct	4
	Sustainability mindset	2

Corporate Culture for sustainability	Integration of sustainability through corporate culture	1
	Own initiative of employees	1
	Defined processes must be lived	1
	Align corporate culture with sustainability	1
Implementation of sustainability	Checklist for eco-design	1
	Supplier Scorecard	1
	Monitoring ecological aspects	1
	Consideration complete product-lifecycle	4
	Action plan	5
	Cyclic monitoring	3
	Audits	3
	Implementation within project structure	2
	Materiality matrix	4
	Step-by-step integration	4
	Development of integration system	2
	Stakeholder analysis	6
	Departments define actions	2
	Global implementation	1
	Scheduling of actions	2
	Deriving actions from goals	1
	Balanced Scorecard	4
	Tools for Integration	2
	CIP	4
	PDCA	5
	Responsibilities	2
	Integration in Processes	5
	Code of conduct	2
	Value stream oriented analysis	1
	Product release through sustainability department	1
	Quick-win projects	1
	Sustainability in target agreement	1
	Integration management system	1
	Iterative integration	3
	Use of norms	1
	KPIs	1
	Sustainability defined as integral part	5
	Anchoring within employees	3
	Creation of standards	1
	Pilot-projects	1
	Integration through projects	2
	Building upon existing	1
	Change Management	1
	Interfaces	2
	Risk management	2
	Work groups	1
	Ecological Life-cycle assessment	1
	Sustainability Check	1
	Explicit sustainability goals	2

Future Improvements	Clear guidelines from the management	1
	Method to identify sustainability in business processes	1
	Requirements analysis	1
	Central organisation of sustainability	2
	Sustainability manager	1
	Definition of implementation process	1
	Simpler reporting	1
	Use of modern communication	1
	Integration in processes	1
	Monitoring	1
	Evaluation scheme for sustainability	2
	Communication	1
	Better realisation of actions	1
Corporate Strategy	Anchoring of sustainability within strategy	5
	SDGs define corporate strategy	1
	Aligning corporate goals with sustainability concept	1
	Making profit sustainably	1
Integration of sustainability through business process management	Integration of sustainability goals into processes	14
	Support of sustainability goals through business processes	5
	Connection between business process management and sustainability	7
	Adjustment of processes to new themes	2
	Processes represent corporate behaviour	1
	Support of the integration into processes	1
	Integration into BPM through projects	1
	Scanning of process landscape	4
	Process for sustainability evaluation	1
	Processes after projects	1
	Iterative sustainability process	5
	Flexible process	1
	New understanding of BPM for sustainability	1
	Use of PDCA	6
	Way of integration into work routine	2
	Sustainability part of process description	2
	Implementation through process manager	1
	BPM too complex	1
	Process description for implementation	1
	Process for product lifecycle evaluation	1
Method requirements	Sustainability as integral part	1
	Consideration of company characteristics	2
	Should become global standard	2
	Transparency	1
	Definition of goals	1
	KPIs	1
	Audits	1
	Benchmarking	1



Others	Sustainability as hygiene factor	1
	One sustainability KPI	1
	Analogy to quality management	1
	Saving the planet	1
	Development of sustainability equivalent to e-function	1
	Sustainability oriented towards the future	1
	Creation of a global standard	1
	Sustainability as added-value	1
	SDGs define company purpose	1
	Companies can point customers towards more sustainability	1

Table 10 Coding 1

In the next phase the categories “Internal Sustainability Communication” and “External Sustainability Communication” were discarded, as well as “Certification” and “Reporting” due to a lack of relevance with regards to the research questions. Furthermore, all codes that were only mentioned once were excluded from further analysis. The only exceptions that were made were codes from the category “Integration of Sustainability through Business Process Management” or “Method requirements”, because these categories represent the central element of this thesis, as well as of the research questions. The author of this thesis did not want to omit any relevant information in this area. Furthermore, the category “Others” was eliminated, due to a lack of relevance.

Following this process, the remaining categories and codes were integrated into further superordinate themes. The category “Legal aspects of sustainability” was integrated into “Drivers for sustainability”. “Sustainability Efforts cause Costs” was integrated into “Conflicting Goals”. The category “Corporate Culture for sustainability” was integrated into “Success Factors for the Integration of Sustainability”. The category “Corporate Strategy” was merged with “Strategy for the Integration of Sustainability” into “Strategy for Sustainability”. “Definition of Sustainability” was no longer described as an independent category. “Sustainability areas of activity” was deleted as an entire category, due to the fact

that the participants named the entire company as relevant, which makes a further differentiation obsolete.

Furthermore, various single codes were assigned to different categories to gain a better overview of the findings. On this level, no more overarching themes were created to avoid a loss of meaning of the created codes and themes. However, codes concerning sustainability goals were grouped together in a separate table, as were the codes concerning the integration of sustainability and method requirements. The result of this stage of coding can be seen in Table 11, Table 12, and Table 13.

Social Sustainability Goals	Internal	Human Rights
		Diversity
		Work-Life-Balance
		Occupational Safety
		Health management
		Employee Development
		Support of employees in all areas of life
		Fulfilment of customer requirements
		Employee loyalty through social sustainability
	External	Support of developing countries
		Support immediate environment
Ecological Sustainability Goals	Internal	Use of renewable energy
		Energy efficiency
		Resource efficiency
		Avoidance of hazardous materials
	External	Climate protection
Economic Sustainability Goals	Internal	Business case for sustainability
		Reduction of costs
		Economic efficiency of sustainability
		Innovations for Sustainability
Definition Sustainability Goals	Stakeholder analysis	
	Top-Down from the company strategy	
	Defined process for the definition of goals	
	Consideration of internal and external interests	
Conflicting goals	Customer requirements and sustainability	
	Balance of elements of TBL	
	Economic Bottom-Line most important	
	Sustainability efforts can cause costs	
	Consistent quality	

Table 11 Codes Sustainability Goals

Drivers for sustainability	Economic Drivers	Competitive Advantage
		Long-term influence on economic success
		Sustainability as new business area
		Customer
		Image improvement
		Added-value through sustainability
	External	Legal Requirements
		Stakeholders
	Internal	Intrinsic
		Responsibility
		Contribution to SDGs
Strategy for Sustainability	Sustainability Road Map	
	Within company strategy	
	Integral part	
Implementation of sustainability	Tools for Integration	Plan-Do-Check-Act
		Continuous Improvement Process
		Risk management
		Action plan
		Stakeholder analysis
		Materiality matrix
		Balanced Scorecard
		Product-Lifecycle assessment
		Monitoring System
		Code of conduct
	Monitoring	Cyclic monitoring
		Audits
		KPIs
		Scheduling of actions
	Ways	Step-by-step integration
		Iterative integration
		Departments define actions
		Through projects
		Definition responsibilities
		Consideration interfaces
	Connecting Points	Processes
		Projects
		Employees
Integration of sustainability through business process management	Reasons for	Connection between business process management and sustainability
		Processes represent corporate behaviour
		Way of integration into work routine
	Reasons against	BPM too complex
	Realisation	Integration of sustainability goals into processes
		Through Projects
		Scanning of process landscape
		Sustainability part of process description
		Use of PDCA

		Process for product lifecycle evaluation
		Implementation through process manager
	Characteristics	Iterative
		Flexible
		New understanding of BPM for sustainability
Challenges for the Integration of Sustainability	Commitment	Create a consciousness for sustainability
		Availability of resources
		Motivation of employees
		Enough time for the integration
	Methodical	Integration into existing processes
		Business process management for sustainability
		Monitoring of sustainability
		Implementation throughout supply chain
		Sustainability benchmark
		Development of integration system
		A system to ensure the consideration of sustainability at any time
		Definition of KPIs for sustainability
		Avoid increase of management system complexity
	Others	Transdisciplinarity
		Consider continuous change of sustainability
		Focus on all three parts of the TBL
Success Factors for the Integration of Sustainability	Corporate Culture	Corporate commitment
		Management commitment
		Trustworthiness
		Pressure
	Organisational	Sustainability Manager
		Responsibilities
		Integral part
	Methodical	Use of tools
		Sufficient information
		Integration into processes
		Systematic monitoring
		Iterative
		Top-Down
		Visibility of goals
		Implementation within strategy
		Consideration interfaces
		Exchange experiences internal and external

Table 12 Codes Sustainability Integration

Method requirements	Sustainability as integral part
	Consideration of company characteristics
	Should become global standard
	Transparency
	Definition of goals
	KPIs
	Audits
	Benchmarking
	Explicit sustainability goals
	Central organisation of sustainability
	Evaluation scheme for sustainability
	Support of the integration into processes
	Process for sustainability evaluation

Table 13 Codes Method Requirements

To display the relations between the different categories and the research questions, described in Chapter 3, the categories were aligned with the respective research question. This can be seen in Table 14.

Research Question	Category
1. How can Corporate Sustainability be integrated into Business Process Management?	Integration of sustainability through business process management
	Integration of sustainability through business process management: reasons
1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?	Integration of sustainability through business process management: characteristics
	Integration of sustainability through business process management: realisation
	Drivers for sustainability
	Strategy for sustainability
	Challenges for the integration of sustainability
	Success factors for the integration of sustainability
1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?	Integration of sustainability through business process management: characteristics
	Integration of sustainability through business process management: realisation
	Method requirements

2. How do companies already integrate Corporate Sustainability?	Social sustainability goals
	Ecological sustainability goals
	Economic sustainability goals
	Definition sustainability goals
	Conflicting goals
	Strategy for sustainability
	Implementation of sustainability
2.1 What lessons have they already learned from the integration process?	Implementation of sustainability
2.2 What are the main difficulties and factors of success?	Challenges for the integration of sustainability
	Success factors for the integration of sustainability

Table 14 Coding categories in relation to research questions

A more in-depth interpretation of the findings of coding is going to be described in Section 5.3.

## 5.2 Data Analysis Part 2: by Interview Question

In this section a summary of the research relevant questions and answers is presented.

To ensure anonymity each of the interviewed companies were given a code, a capital letter from A to O. If more than one respondent was interviewed, numbers were used. The answers of the companies can be found in Appendix F (Company A) to Appendix T (Company O).

### *How is Corporate Sustainability defined in your company?*

Most of the companies only use the Triple Bottom Line of Elkington or the Sustainable Development Goals of the United Nations for the definition of sustainability. They do not make relevant modifications of existing definitions to include corporate specifics. In some companies, only parts of the TBL are used to define sustainability. The focus lies mostly on the environmental part of the TBL. The social bottom line is in most companies a responsibility of the human

resources department. The respondents were not able to report details about activities for social sustainability. The economic part of sustainability is often mentioned as a matter of course, because this is the basis for the existence of the company. Some companies work out a definition for sustainability or at least parts of a definition. They use the TBL as a basis and then add some company specifics, such as a product focus.

One interviewed company (Company N) had a very general definition of sustainability: "Sustainability applies in terms of how the profits are earned and not how the profits are used." The respondent emphasised that for being sustainable it is not important how profits are spent, it is important that company conducts its business activities in a sustainable manner.

However, there were also few interviewees who did not even know if there was a definition for sustainability in their company.

In general, it can be said that companies do have a definition for sustainability, which refers to the TBL or the SDGs. They do not develop a definition for themselves. The lack of a definition that includes company specifics, makes it hard to define a strategy and finally the actions on the operational level. It also leads to the fact that in many companies not all employees know what is meant by sustainability in their company. The missing understanding leads to a missing commitment of the employees. Company N observed a similar behaviour of their employees in the context of sustainability as they observed in the context of lean management. If employees do not understand what is meant by a certain term, like sustainability, they tend to decline all activities in this area, in first instance. A majority of companies mentioned the necessity of explaining sustainability to their employees to generate the relevant commitment. Some also emphasised the need for change management to convince the employees about sustainability.

This is a major problem for companies, if they aim to become sustainable. Nearly all companies mentioned a lack of resources for their sustainability activities and emphasized that it is only possible to become sustainable if all employees consider it in their behaviour. This thesis should try to find a definition for sustainability that supports companies when trying to bring sustainability to the operational level.

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

Different reasons why they need to be active in the area of sustainability and why they need to improve their performance are mentioned by the interviewees. These reasons can be divided into internal and external reasons. Whereby external reasons are named more often. Only few companies are only interested in sustainability due to internal motivation and not because of image reasons or customer demands.

External reasons/ motivation for sustainability:

The most named reason for sustainability is the legal regulations. For nearly all interviewed companies the strongest motivation for sustainability is that they have to meet all legal regulations. Especially in Germany a high amount of legal regulations exist that refer to environmental, ecological and social sustainability.

Another external reason for sustainability is customer demand. Most companies reported that the customer demands are strongly increasing in recent years. Most of the time the companies conduct a stakeholder analysis to identify these, including all relevant stakeholders, not just customers, also shareholders, NGOs, employees and the society. Not all companies mention this as a reason for sustainability. Some even disagree that there is a customer demand for



sustainability. In this context the companies also mentioned the maintaining or improving of the company's image as a reason to become sustainable.

Internal reasons/ motivation for sustainability:

Economic and cost reasons are named by the companies as motivation to become sustainable. The companies began to recognize that there are aspects of sustainability that lead to lower costs, as for example the reduction of waste or energy consumption. It was also reported by the companies that all sustainability activities that can be connected with a reduction of costs were widely accepted throughout the company.

A success factor for the integration mentioned by the companies is the management engagement and there are companies that reported that their sustainability engagement is a result of the owner's interest. The owner formulated the expectation that the company should behave sustainably, accordingly it is a goal of the corporate strategy, brought into the company top down. This reason could be found in companies that are family owned. Also, other companies named the company values as a reason for any sustainability engagement and activities.

Some companies named the realisation of a social political responsibility and the obligation to consider future generations during all their business activities as a reason to become sustainable. They understand sustainability in the sense of the WCED.

A further reason for companies to become sustainable are that some companies see sustainability as an "excitement attribute" of the products. They see a possibility to separate their product from other existing products through sustainability.

The understanding that economic sustainability can only be reached if it goes hand in hand with environmental and social sustainability is the reason for Company L to become sustainable. This reason is only mentioned by Company L, although it is important to mention, because through this understanding sustainability will become an integral part of the company.

Every interviewed company said that sustainability is an important topic and that they are motivated to improve their sustainability performance. When looking at this, it needs to be considered that a self-selecting sample is basis for the gathered data. This allows to draw the conclusion that they are interested in the topic. Another aspect is that this is an answer that is expected by society.

Companies that are interested in sustainability due to external reasons are less engaged and most of the time they only do what is necessary to fulfil the external requirements. The companies that are mainly internally motivated in sustainability are much more involved in this topic and put much more effort in becoming sustainable. "Sustainability is an attitude in our company" (Company D). Of course, there are companies that have external reasons as well as internal reasons, though most of the time one kind of reasons predominates. They normally do much more than is required from any stakeholders. Nevertheless, for all companies, the different stakeholders play an important role for the motivation and the extent of engagement in this area. Differences are made in which stakeholders are considered.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

All interviewees were able to name goals that the company has in the area of sustainability. Nearly all companies agreed that economic goals are not directly

connected to sustainability. They see the economic goals as the basis for every company, regardless of whether sustainability is considered or not. That is why they focus on environmental and social goals when talking about sustainability. What also could be recognized is that it is easy for all companies to define and measure KPIs for the environmental goals. For social sustainability, companies still struggle with the definition of KPIs.

For all companies it is self-evident that all legal regulations are part of the goals and need to be met. However, there are some companies that go far beyond compliance with laws, as well for the environmental part of sustainability as for the social part.

The goals that are defined are mostly going back to the SDGs, some mention the image improvement in addition. Company J defines the goal or sustainability as follows: “to establish sustainable growth and value adding”.

A minority of companies mainly focuses on the product when talking about sustainability, so their goals are also directly connected to the product. Their goal is to become a sustainable company through a sustainable product.

The definition of goals is different in each company. Most of them try to integrate them into the company goals, some also go one step further and define sustainability goals for each employee. The goals are also connected to a bonus for the employee. Some companies have a more formal process to define the goals than other companies have. For example, Company L uses the process of continuous improvement. They study what they do, where they stand, and how they can become better. Other companies also refer to this process. In some companies, a stakeholder analysis or a materiality matrix is used to define the areas of main interest.

*To what degree are Corporate Sustainability and Business Process Management linked?*

“Sustainability must definitely be integrated on the operational level. It has to become part of the company, only in this way it can be successful” (Company O). Nearly all interviewed companies agreed on the fact that sustainability needs to be integrated and needs to be part of the BPM. Only two companies gave no answer to this question, although most of the companies struggle with bringing both topics together. Status quo is that they see the connection but cannot translate it to their company. This gap is shown in the literature review beforehand and is strengthened by the answers of the interviews.

Different reasons are named why this link is important. One reason is that this way it becomes part of the daily work and sustainability can be integrated on the operational level. Sustainability needs to be part of the corporate culture. That is another reason why the link is necessary. Through this link, every employee can be reached and gets confronted with the importance of sustainability.

The majority of companies had already tried to establish this link through the PDCA-cycle. When they look at their processes, they also consider the goals of sustainability and try to improve their processes in a way that helps to reach these goals. The PDCA-cycle is used for continuous improvement in a company (Deming, 2000). Originally it was used within quality management. Nevertheless, the approach can also be used for the improvement of the sustainability performance. Companies use the cycle for sustainability by considering sustainability goals within the first phase of the cycle, the planning phase. In the second phase of the cycle, ‘Do’, they implement the planned measures. It is not an implementation in the line, it is more like an experiment to evaluate the efficiency and effectiveness of the developed measure, which is the next phase

‘check’. The last phase would be the broad implementation of the developed measure. This step is not always carried out when using the PDCA-cycle for sustainability. The respondents named different reasons for that, including the lack of resources, missing responsibilities and measures not coordinated centrally.

*What has already been done to improve sustainability through the integration into Business Process Management?*

Only five companies had an answer to this question. However, none of the interviewees was able to describe an approach how they used BPM to improve corporate sustainability.

There are two different perspectives on the link of sustainability and BPM. The first perspective, sustainability in strategy, is that sustainability is considered when developing the company’s strategy and that there is a defined process for the development of a strategy. Sustainability is, from this perspective a supplement in the strategy development, like in the Sustainability Balanced Scorecard Approach. The other perspective, sustainability in operations, is that processes are designed under consideration of the goals of sustainability. In this perspective, sustainability defines the fields of activity and it determines the processes. Further it has to be integrated in the processes. In this case sustainability is directly integrated into the BPM. This is also the aim of this thesis, to achieve a direct connection and integration between sustainability and BPM. “The basic idea is that the revenue has to be generated sustainably and it has to be found within the processes” (Company A). The processes define the “How”.

Company I was the only one that was very precise about the integration of sustainability into the BPM. They have established checklists in the processes, they have defined indicators, and they have a detailed documentation about the sustainability of relevant parts of a process.

*How did the projects of improving sustainability go?*

In the following, the experiences of sustainability projects in the interviewed companies will be presented. Not every interviewed company was able to describe their approach of sustainability projects due to the fact that they do not have a standardised approach.

Company A tries to integrate sustainability proactively. While setting a goal for sustainability the results of a stakeholder analysis are taken into account. From the stakeholder analysis different aspects derive that need to be taken into account in the future. All aspects are written down and all aspects are monitored. When a goal is defined, it is examined which business processes are relevant for it and how these need to be changed to reach the set goal. If necessary, also new processes are implemented. In future the company has planned that all aspects should lead to a superordinate program and they should be linked to the strategic goals. Further clear measures should be defined for each aspect and they should be visible in the balanced scorecard. Although the respondent described a procedure for sustainability projects, the company still faces lots of difficulties regarding the aim to become sustainable, especially that the corporate strategy and the strategy for sustainability need to be linked.

In Company B, all sustainability projects are initiated by different triggers e.g. legal regulations, on-site inspection, scan of the complete company (processes, material, etc.). All triggers are documented in a tool and different actions are

derived from that. For each action a person responsible is defined, and a specific area, a fixed deadline and priority is assigned to every action. It is furthermore extensively documented how the goal should be reached and afterwards how it was reached. The documentation is for all complex actions, which needs to be monitored by the management. Simple actions are realised directly. Monitoring takes place weekly, also to create pressure on the responsible persons. All actions that are documented have to be tracked and have to be realised successfully. Subsequently the relevant processes are changed, adapted, or updated. There is also a fixed process how new legal regulations have to be incorporated and realised. Company B has specified and standardised proceeding to integrate sustainability. It needs to be mentioned that Company B is the smallest of all companies. Though this company faces difficulties within sustainability projects, efficiency and effectiveness are still a problem within any sustainability project.

Company D is extensively working on sustainability. They start any project with a delta analysis of what they have and what is required by norms. Their understanding of the integration of sustainability is a pyramid model. On the top level is their own vision of sustainability, from which a business model should derive. On the second level of the pyramid stand the corporate strategy, including the consideration of the stakeholders and their demands. This is done with the help of a stakeholder analysis. This analysis also defines the different fields of activity. The results of the stakeholder analysis are the input for a materiality analysis. From these fields of activity, the areas within the company which are relevant are derived. All results will be used to develop a road map. The road map represents the pyramid's third level and lies on the operational level. All actions are carried out within a project and are handed over to the processes

afterwards. Although this last step, the integration into the processes, is not always part of the project. The respondent reported that the projects go very well, but the integration on the operative level does not happen all the time.

Company E is very self-confident about their sustainability integration. The interviewee stated: "sustainability is already part of the business and the existing processes." They are also using a stakeholder analysis and a materiality matrix to derive new topics. The division goals, the company goals, and the legal regulations are taken into account. These results are used for the development of a strategy and the planning of upcoming actions. Twice a year, projects are planned in the course of strategy workshops. Afterwards the actions are exclusively planned by the divisions. The respondent is not part of these projects and was accordingly not able to report about the proceeding. From these statements it is not possible to assess the quality of sustainability projects within this company.

In Company F the goals are defined on a global level and then passed to the local level. This is where the goals are implemented on the operational level. On the local sights a plan of action is developed. Where possible the goals are backed with indicators. Each goal is monitored and they have a worldwide audit system specific to the company. The reporting takes place up to the top level of the company. In this company the respondent, part of the sustainability department, was not able to provide further details about the proceeding of sustainability projects. Possibly because there is no standardised proceeding. The respondent reported that sustainability projects are more like ad-hoc projects.

Similarly, in Company G the respondents were not able to describe a detailed proceeding for sustainability projects. Within this company, goals for each department are set twice a year. The respondents stated that the goals are



specific and once a goal exists everyone knows what to do and the integration on the operative level is not difficult. The measures are reviewed yearly.

In Company H a balanced scorecard is used to develop the goals. For each goal a responsible person is defined. Sustainability is coordinated centrally in this company. The respondent reported that the top-down realisation simplifies the integration of sustainability, although it reduces the flexibility each department has.

Company J has been active in the area of sustainability for several years. As a consequence, the mind-set has spread through the whole company and the company has no real problems with the integration of sustainability. They have established checklists in the processes, they have defined indicators, which can be audited, and they have established the necessary settings for the employees to behave in a sustainable manner. However, the respondent did not report about a standardised procedure to integrate sustainability. This may be due to the fact that sustainability is already an integral part of the company.

‘Lean and green’ is the idea of Company K for the integration of sustainability. They added the green wastes to the waste consideration. Social sustainability was not considered separately. The respondent reported that social sustainability is already part of the company. They started a few years ago to become active in this area. The company has been examined along the whole supply chain to search for the biggest levers regarding sustainability. With this theoretical approach a road map was built. The most important areas within this company are electricity consumption and transport distances. For every lever the point of approach and implementation has been identified/ determined. KPIs were defined and reported monthly.

Company L already has a systematic approach although the respondent was not able to explain it. According to the respondent, this is because sustainability has been part of the company for many years and they do not have any problems with the integration.

A stakeholder survey is also the starting point for Company M. From this survey themes and goals are defined. The next step is the development of an implementation plan that includes goals and indicators for them. This together is described as a sustainability programme by the company. This programme is turned into action with regular PDCA cycles. Measures are passed on directly to the responsible person, who is supported as far as possible by the sustainability management. Most of the goals have been reached in the past and if not, it was not due to the unwillingness of the employees. This company also lacks a standardised process to integrate sustainability into the business process management, although they state that this is relevant for the success of corporate sustainability.

The respondent from Company O reported that there is always a process behind sustainability. First of all, a sustainability road map is developed and presented to a committee and needs to be approved by all involved. This road map has a five-year horizon. The next step is the definition of goals at the division level. These goals are taken into account in the strategy development for the respective area and are thus brought to the operational level. Each divisional manager also has goals of sustainability in his personal target agreement. This integration into the target system helps to build some pressure and achieve the goals. However, this would not be necessary in the company, since sustainability has become an intrinsic interest in the meantime. All sustainability goals are tagged with metrics, tracked, and the progress is measured. Sustainability measures are treated and

monitored like all other measures. Company O was the only company that was able to report on a detailed level about their sustainability projects and the integration on the operational level.

Analysing the answers to the question how projects of improving sustainability go, diverse difficulties were named. Interestingly nearly all companies have to deal with the same variety of problems and barriers.

One big issue regarding such projects is the availability of resources. Sustainability is often still seen as an additional task (Company F). This means that those projects are still not very important, which results in a lack of resources, human as well as financial.

It is a general requirement to secure economic sustainability and therefore keeping the balance between effort and benefit of sustainability projects.

Another very often named problem the interviewees have to deal with is communication. This is often caused by the lack of resources, but the companies struggle to communicate sustainability throughout the whole company. This results in a lack of employee engagement and motivation. Persuasive efforts are necessary when bringing sustainability projects into processes. To reduce the impact of this problem and to reach persuasion small steps and pilot projects are useful because quick wins lead to acceptance and motivation (Company D).

The major problem regarding the improvement of sustainability is the missing link between the corporate strategy and the corporate strategy for sustainability. The corporate strategy defines the general direction the company goes, and it defines the development of the company in the future. If it is not linked to the corporate strategy for sustainability, sustainability will not become an integral part of the company and it will not be integrated. Further companies still have not integrated

sustainability into the organisation in terms of defining responsibilities. What was named by nearly all interviewees was the missing integration and implementation on the operational level. Sustainability is not automatically part of all projects, guidelines are missing, a clear definition of sustainability is missing, and also the measurement of sustainability by developing and implementing KPIs is still not state of the art. This problem is strengthened by the diversity of existing regulations and laws. The conformity with the law makes the integration harder on the one hand, because it needs to be done in a very flexible manner to make sure that things can be changed if necessary, but on the other hand it makes it indispensable to be able to secure and control that companies meet the regulations.

The sustainability manager of Company O summed everything up: “What makes the job very difficult is that sustainability is always directed to the future and not retrospective. However, one does not know how the topic will develop in the future. Currently there are different laws, different specifications in all countries. Then there are guidelines from associations and that makes it very hard to find one way. It would be very helpful if there was a standard and you had a globally accepted system/ standard for sustainability” (Company O).

The difficulties are sometimes named as success factors for such projects, like the communication. Also named as a success factor as well as a difficulty was the fact that sustainability needs to become an integral part of the company through anchoring it within the strategy and the organisation of the company.

However, it is noticeable that integration on the operational level is very often stated as a requirement for a successful project, especially the implementation into the processes including the definition of targets that are deposited with key performance indicators. In this context another factor has been named: the long-

term monitoring of risk factors. The interviews showed that it takes a long time to make a company more sustainable. Because of this, trends must be recognised early so they can be implemented within the organisation and processes. “Sustainability objectives must be part of the strategy-picture and the metrics of the overall objectives have to include sustainability measures” (Company K1).

Further success factors are the commitment of the management. The management must give this topic high significance and the managers themselves need to act as a role model for their employees. In addition, technical support could help to increase the pressure through more transparency. The employees need to take an active part and their commitment is necessary. Therefore, affected employees should always be involved in any projects, especially employees on the operational level. A key factor to reach this is again transparency, about everything that has been done and is going to be done in the area of sustainability.

In some companies responsibilities are still not defined. This definition and the appointing of a sustainability manager would have definitely helped to increase the success of sustainability projects.

*What would you do differently if you had to manage a similar project again?*

This is a very insightful question. Only three companies had an answer to this question. The answers they gave were not very detailed.

One company (Company A) answered that in the future the business processes need to be more sustainable and that sustainability and business process management need to be linked. This statement definitely supports the aim of this research, to improve sustainability through linking sustainability and business

process management. It shows that the company does not have an idea how to do that at the moment.

In contrast to that, the other two companies (Company G, Company K) answered that they would not do anything different, and that they do not have any problems with their projects.

The answers suggest that the companies made no effort to evaluate those projects and to improve those projects in the future. At least there is no formal lessons-learned process in the companies in this area and there is always room for improvement, because none of the companies interviewed is perfectly sustainable.

Another reason that the companies do not have an answer to this question might be that they do not have a formal process for projects that have the goal to improve sustainability.

The interviewees might also be influenced by what might be expected to be their answer to this question.

*Regarding a method that would improve sustainability with the help of BPM, what would be important for you?*

The companies want a system to make sure they stay updated in the area of sustainability. One company required that the method should become a globally recognized standard, which should enable comparability (Company O).

Further requirements were mentioned, although the interviewees struggled in defining requirements for the method.

The method that is going to be developed needs to be understandable and transparent. The interviewees emphasised that it is important that they are able to understand how the method works and how it needs to be proceeded.

They also required that the method should include clear goals for sustainability including KPIs. This requirement results from the difficulties they have with defining goals for sustainability. In addition, the companies still struggle with a definition for corporate sustainability that will support the definition of a strategy and a definition of goals. Accordingly, they also required a method that includes such a definition.

Furthermore, the method should not lead to more processes or to confusing processes. The high amount of processes they already have leads to difficulties in the management of these and they observed that employees become overstrained and start to refuse to use the defined processes. That is why it is important that the method does ensure the readability of the processes.

Due to a lack of resources that is stated by the respondents, they emphasize the importance that the new method needs to be included in the current system, considering the surroundings and extraneous factors. They would not use a method that creates more work and requires more resources.

Sustainability is strongly linked to the value chain of a company, in the opinion of the respondents as well as in the opinion of the existing literature. Accordingly, the method should be linked to the value chain. Furthermore, it should be customisable to the specifics of the value chain and thus customisable to the specifics of the company.

The interviewed companies see sustainability as a topic with fast changing goals that have to be reached, due to changing regulations, changing standards and

changing stakeholder demands. To consider this fact the method needs to be flexible.

Since the integration of sustainability is still a problem for companies, they want the method to be structured and systematic to improve their actual approach. Until now the companies react to changes and integrate what is necessary. But they are not proactively scanning their company to identify where sustainability needs to be integrated or improved. This is not because they do not want to be pro-active, rather they are missing the appropriate tools. They hope the method that is going to be developed will overcome this gap in a structured and systematic manner.

The last requirement that was formulated by few companies is that the method should include the documentation of the proceeding.

Besides stating their requirements, three companies outlined a rough description of such a method.

Company C proposed three steps. The first one is scanning the procedural landscape, the second is to mark sustainable processes and the third step to implement new goals. Therefore, an evaluation scheme/ matrix for processes is needed to know the current level of sustainability.

The adaption of the PDCA-cycle or the Continuous Improvement Process was suggested by Company D. Part of it would be an evaluation of what the company does, if a modification works and if it adds value to the company. To make sure that the right topics regarding sustainability are addressed. This idea will be considered further in Chapter 5.5 Development of the Framework.



Company L suggested a sustainability check: stakeholder analysis at the beginning, it has to be clear which areas should be approached and therefore the knowledge of the company and its surroundings is necessary. With that relevant topics can be derived. Then every topic is evaluated: what is important, what are the possibilities and risks.

As the descriptions show, the companies are still at the beginning when thinking about a method that would help them. This can be interpreted that the companies have not even recognised that they need to improve their activities in the area of sustainability.

### **Additions**

At the end of every interview the interviewee was invited to add anything. Some very interesting thoughts were mentioned here, of which some are relevant for this study.

At the moment sustainability is kind of a new business area, because it is a relatively new trend, but the interviewee from Company D believes that someday it will be a hygiene factor, it will be a performance characteristic of a product. Right now, however it is an admired feature companies have to think about, what the company can do, in the sense of sustainability, to generate a unique selling point.

Sustainability engagement in companies is not just about thinking about the benefits and opportunities that can be generated, it is also a responsibility. Companies have to be active on a small and a large scale (Company N).

For this commitment companies need tools and approaches to manage sustainability, it needs to be anchored within the value chain. Companies need to put sustainability in the centre of attention and need to derive how that can be

found within a business process model. They need to define management processes, develop strategies, and involve stakeholders. They need to develop processes towards sustainability and measures, and key performance indicators need to be planned. However, when thinking about sustainability and its connection with BPM, it is not about repeatability of things. Sustainability is a topic that needs to be redefined over and over again, it needs a continuous improvement.

Sustainability has to be understood as a way of normal way of behaving (Company L). Companies tend to understand sustainability as a label, which can be reached through single activities. However, sustainability has to become part of all activities of the company, so it has to become part of the behaviour of all employees of the company.

### **5.3 Findings**

The general picture emerging from the analysis is that companies still struggle with the integration of sustainability and accordingly the improvement of their sustainability performance.

One reason for that is, not all companies recognize the need for sustainability in business. The interviewed companies can be differentiated into one group that is intrinsically motivated to become sustainable and another group that is extrinsically motivated. Among the drivers for sustainability, the coding of the interviews showed that beside internal and external drivers the economic drivers play an important role in the decision for corporate sustainability. The companies reported a possible competitive advantage, alongside an improvement of their image and a long-term influence on their economic success. Besides being customer-driven, the decision to integrate corporate sustainability also adds

value to their business. However, a certain number of interviewees responded that an important reason for sustainability lies in the intrinsic motivation of either the top management, or founders/owners of the company. Also, a feeling of responsibility towards both the direct and global environment of the company was reported, next to a contribution to their SDGs.

The first group see sustainability as a necessity, a matter of course, and a factor of success. Intrinsically motivated companies often have an owner or a top management that is highly interested in sustainability. They define and communicate the necessity of sustainability. The other group of companies are mainly extrinsically motivated. Among the external drivers the ones that were mentioned the most by interviewees were existing legal regulations, that need to be met, as well as the influence of the different stakeholders each company needs to satisfy. In those companies most of the time sustainability is only promoted by employees and not by the top management. The top management is merely extrinsically motivated, they only want things to be done that have to be done, like the application of legal requirements. Hence, they see sustainability more as a hygiene factor, something they have to achieve due to legal regulations, but not something that leads to more success. Accordingly, the motivation influences the approach towards the integration of sustainability. Generally, it can be observed that intrinsic motivated companies are much more engaged and seem to be beyond extrinsic motivated companies. Nevertheless, these companies also demand a systematic and structured approach to integrate sustainability due to the extraneous circumstances that are changing.

The interviewed companies can also be categorised in terms of triage. Related to the companies the categories represent a) companies that are already sustainable or already on the right track, they only have to keep making

improvements, b) companies that have to become more active, that have to increase their effort and engagement and c) companies that have major problems and only a change of their business model would help them to become a sustainable company.

Another important finding from the conducted interviews is the existing approach towards the integration of sustainability. All observations from the interviews were aggregated to one approach, shown in Figure 23.

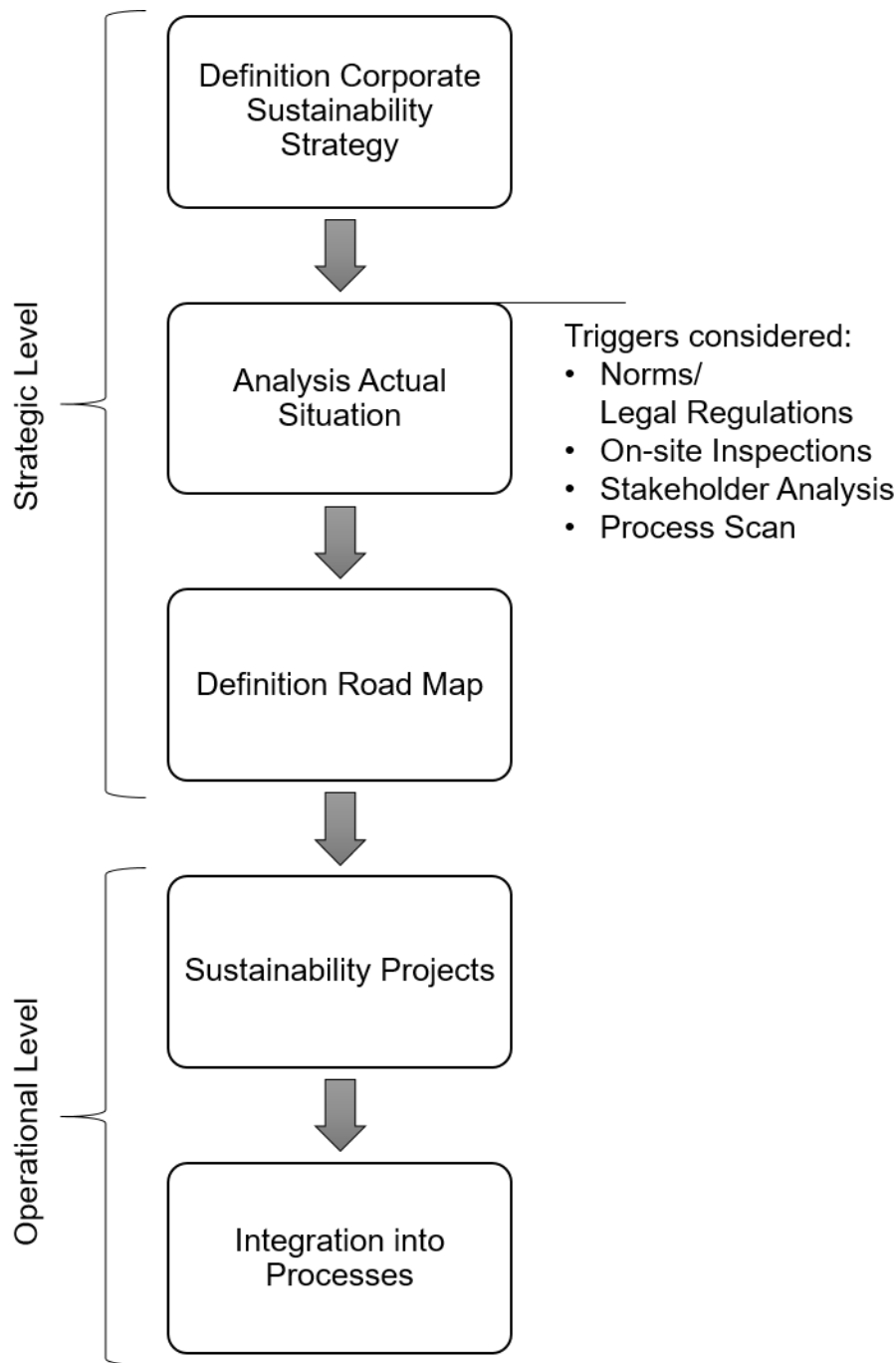


Figure 23 Sustainability Integration Approach

The first step, as shown in Figure 23, is the definition of a corporate strategy including a strategy for sustainability. This step is often difficult for companies, due to different reasons. First, they do not have a common understanding of what is meant by sustainability and what it means to the company. The strategy for sustainability is often defined separately. Accordingly, it often is not completely consistent with the overall corporate strategy, which makes an integration on an

operational level difficult. This is supported by the findings the coding showed. Only five companies had integrated sustainability into their company strategy. Of those companies three further reported to be using a sustainability road map.

Second the analysis of the actual situation. Currently companies appear to be acting reactively. Different triggers exist for companies to become active, like legal regulation, stakeholder analysis, or reporting standards. Only a few companies take an active role through analysing their processes or making on-site inspections to find starting points for the improvement of their sustainability performance. Companies have difficulties to coordinate all the different triggers.

The missing link between the corporate strategy and the corporate strategy for sustainability also affects the definition of a road map for the improvement of the sustainability performance. Some respondents explained that there are conflicting goals between the two strategies, e.g. the corporate strategy aims at the reduction of costs while the sustainability strategy aims to use more green electricity, which is more expensive.

The coding supports these findings. In some companies the customer requirements do not match with the goal of achieving sustainability. The main conflict lies in the economic aspect of sustainability. Balancing the elements of the Triple Bottom Line proves to be difficult for many companies, since the economic bottom-line receives the most attention and sustainability efforts can cause more costs, especially at the beginning.

Another conflict appears to be the ability to provide a consistent quality of products when consequently working on a sustainable basis, for some companies. Furthermore, companies are used to work with performance indicators. A common saying is "If you can't measure it, you can't manage it".

Up to this point, most companies either rely on KPIs, audits, some form of cyclic monitoring, and they develop a regular schedule for further actions. This was shown by the coding in Section 5.1. But this cannot be applied to all areas of sustainability. Especially in the area of social sustainability, not everything can be measured quantitatively, and some indicators can even be contradictory. Some of the respondents do not see the necessity of KPIs for the management or improvement of sustainability, but they see it as a problem regarding the communication with the top management.

The sustainability projects are often performed using the PDCA cycle. The application of this to attain the defined goals, is in accordance with the interviews performed without any relevant difficulties. After conducting the PDCA cycle the companies again struggle with the integration into the processes.

Companies see a strong connection between corporate sustainability and business process management on the one hand. On the other hand, companies do not use the processes and business process management to find a starting point for sustainability, although some state that sustainability can only be successfully integrated when it is considered in the business process management. They do not even integrate developed measures into their processes. Actually, companies integrate sustainability through different single projects that are not connected to the business processes.

Concluding, the companies named the following difficulties, regarding the integration of sustainability (not presented in a particular order):

- Systematic and structured process/ approach is missing
- Integration on a strategic level
- Integration on an operational level
- Integration into existing processes and the existing BPM
- Lack of resources
- Communication
- High number of regulations and laws
- Flexibility required by the topic
- Difficult to measure benefits
- Low significance of sustainability
- Creating a consciousness for sustainability and motivating employees
- Lack of time
- Monitoring of sustainability, including Definition of KPIs
- Implementation throughout supply chain
- Comparison with other companies
- Avoiding an increase of management system complexity
- Balancing TBL
- Transdisciplinarity/ Collaboration between departments
- Adaptation to continuous change of sustainability
- Systematic consideration of sustainability at any time



Besides the aforementioned challenges, the interviews also provided various possible success factors. In the coding they were divided up into success factors concerning the corporate culture, organisational success factors, and methodical success factors, these can be seen in Table 15.

Corporate Culture	Organisational	Methodical
Corporate commitment	Sustainability Manager	Use of tools
Management commitment	Responsibilities	Sufficient information
Trustworthiness	Integral part	Integration into processes
Pressure		Systematic monitoring
		Iterative
		Top-Down
		Visibility of goals
		Implementation within strategy
		Consideration interfaces

*Table 15 Success Factors for the Integration of Sustainability*

The list of success factors is not a result of successful performed integration projects. They are the result of a lessons learned analysis of the interviewees. Accordingly, the interviewees see them as factors that lead to success.

The interviews conducted also revealed various requirements for a systematic and structured approach, which should help to overcome the named difficulties. A central requirement identified is the support of the integration into the processes. As already mentioned, on the one hand the companies struggle with the integration on the operational level, and on the other hand they definitely see the connection between corporate sustainability and the business process management. Most of the interviewed persons are convinced that corporate sustainability can also be successfully integrated through the business process management. However, the integration should be done in a way that retains the readability of processes, meaning that the complexity of the process description should be kept to a certain level, so that all employees can still understand it. In

this context they also require that an approach should help to detect the performance gap of business processes regarding sustainability.

At the same time the approach should take into account that sustainability must be integrated with a certain degree of flexibility. It is about finding balance between a repeatable fixed process and the necessary flexibility.

The companies are still missing a definition for sustainability on the operational level, which is why this was also named as a requirement for an approach to be developed. This includes the definition of clear goals deposited with key performance indicators. Some of the companies additionally demand a globally accepted standard that defines sustainability and provides a means of benchmarking.

Another major issue for sustainability managers is the promotion and communication of the topic throughout the company. They believe in the integration of sustainability into the processes and into the daily work of the employees. If the approach is able to meet this requirement, it should also be able to promote the internal marketing of sustainability.

Of course, very general requirements were also named, like the solution must be customisable to the company, it must be structured and systematic, it must be easy to understand, and it must be transparent.

The coding, described in Section 5.1, also brought out the requirements of developing an evaluation scheme for sustainability, including KPIs and using audits when attempting the integration of sustainability. This should go hand in hand with a defined process for sustainability evaluation. Besides the definition of explicit sustainability goals, the integration should be centrally organised, as an integral part of the company strategy. When integrating corporate

sustainability, another important demand was the consideration of company characteristics at all times. All of the codes regarding method requirements can be found in Table 13.

A more detailed summary of all named requirements is presented in the following.

Table 16 indicates how many respondents mentioned each requirement.

<i>The developed solution for the integration of sustainability must:</i>	<i>Named</i>	<i>Company</i>
support the integration of sustainability into processes	14	A, C1, C2/3, D, F, I, J1/2, K, L, M, N, O
allow to detect the performance gap of business processes regarding sustainability	8	A, B, C2/3, D, K1/2, L
retain the readability of processes	3	A, C2/3
needs to flexible	4	A, B, D, H
provide a definition for sustainability	2	G1, G2
support the definition of clear goals, deposited with key figures	6	A, G1, H, I, M, N
provide a means of benchmarking	2	O, H
promote the internal marketing of sustainability throughout the company	13	A, B, C1, D, F, G1, H, J2, K1, K2, L, M, N
be customisable to the company	2	H, N
be linked to the value chain	1	N
be able to be included in the current system	2	C2/3
consider the corporate culture	2	J1, N
consider surroundings and extraneous factors	2	C2/3
needs to be iterative	5	B, D, I, L, M
be structured and systematic	4	H, J1/2, M
be easy to understand	1	O
be transparent	2	M, O
allow documentation of the improvement project	2	B, O

Table 16 Requirements for the framework emerging from the interviews

One of the central aims of this study is the development of a framework that helps managers to better understand and manage the integration of sustainability, in the sense of economic, environmental and social sustainability into business process management. Before this framework can be developed, it is necessary to define the specifications and requirements towards it. These need to be deduced from the interviews as well as from the literature review.

In this chapter the development and framework for sustainability integration through business process management itself will be described.

### **5.4 Discussion of Specifications for the Framework**

Using the results of the interviews allows a framework to be developed which considers the needs of the practitioners and overcomes the main gap detected in the existing literature, which is that most of the developed approaches are only based on literature and hence are not connected to the needs of the companies. Nevertheless, the results of the literature review also need to be part of the development process, since the goal of this thesis is to contribute to the current state of knowledge. It also increases the reliability of the developed framework.

As the literature review showed, different approaches to integrate sustainability already exist. Most of them are developed to integrate the topic into corporate strategy (Bonini and Görner, 2011, Eccles et al., 2012, Kiron et al., 2015) even though the literature emphasises the importance of integrating sustainability not only into corporate strategy, but on the operational level (Figge et al., 2002, Vermeulen and Witjes, 2016). It has also been observed in the interviews that it is not challenging for companies to put some statements about sustainability into their corporate strategy. But they struggle to define a strategy that supports the

integration into the operational level and to turn the strategy into action. Hence, the framework that is going to be developed needs to integrate sustainability on an operational level. "Sustainability must definitely be integrated at the operational level. It has to become part of the company, only in this way it can be successful" (Company O). It needs to overcome the problem of the execution of the formulated strategy (Figge et al., 2002, Kiron et al., 2015). The formulation of the strategy itself is not part of the framework. Different approaches already exist that help companies to develop and formulate a strategy for sustainability, such as the Sustainability Balanced Scorecard of Figge et al. (2002).

What companies do not consider systematically, for the integration on the operational level, are their processes, which represent all activities of the company, even though Kiron et al. (2012) see the integration into the processes as a critical factor for the longevity of sustainability. This means the framework should support companies in integrating sustainability in the companies' processes, thus: *Requirement 1: The framework needs to support the integration of corporate sustainability into business processes.*

Business Process Management includes the processes and KPIs and it can be seen as a methodology for describing and improving organisational sustainability (Isaksson, 2006). The interviewed companies definitely see a connection between BPM and corporate sustainability - "there is certainly a link between sustainability and Business Process Management" (Company D) - and they formulated the connection with the value chain as a requirement for the framework: *Requirement 2: The integration of corporate sustainability needs to be linked to the value chain.* "Process management has to be used, since sustainability has to be realised within the core competence/core processes. Thus, it becomes an integral part of the company" (Company A). But they do not

have an approach to connect both topics. They need a "concrete statement of what needs to be done, how and where" (Company M). Neither do they use process analysis to find possibilities to improve their sustainability performance - "an evaluation matrix for processes" (Company C2/C3) - nor do they redesign their processes for the same purpose, thus the second requirement is: *Requirement 3: The framework should allow identification of the performance gap of business processes regarding sustainability.* They mainly proceed their sustainability activities through individual projects and these projects are mostly not initiated by a systematic and structured delta analysis of what needs to be achieved, considering the different triggers, and what is current state in the company. Although it is emphasised in the literature and in the interviews that an integration approach should always be structured and systematic (Vermeulen and Witjes, 2016): *Requirement 4: The framework needs to present a structured and systematic approach for the integration of corporate sustainability into business process management.*

The main purpose of the framework to be developed is to support companies to integrate sustainability through the business process management and at a strategic level as well as on an operational level.

Another challenge in connection with the integration is to define sustainability on an operational level: *Requirement 5: The framework should provide a definition for corporate sustainability on the operational level.* "It is fundamentally very difficult to define sustainability. Such a definition would make things much clearer" (Company G2).

This also includes the definition of measurable goals: *Requirement 6: The framework should support the definition of sustainability goals, including key figures.* The framework should provide a definition for sustainability that is helpful on the operational level or at least it should support the companies in finding a definition themselves. Regarding Requirement 6 it should help structure all the different goals, because different triggers for sustainability activities exist, like legal regulations and stakeholder requirements.

Another requirement that was derived from the interviews is that the framework needs to be flexible: *Requirement 7: The framework needs to be flexible.* "The model has to include, replicate and simulate the diversity of sustainability" (Company H). The companies do not only struggle with considering different triggers for sustainability activities, they also have difficulties with keeping track of the changes regarding legal regulations or stakeholder requirements for example. The respondents understand that sustainability is a topic that is fast changing and for a successful integration it is necessary that companies are able to behave proactively, flexibly, and adaptively.

The extent of integration depends on the ambition level, which itself depends on the organisation's existing value system and the external trends and circumstances (Baumgartner, 2009, Marrewijk and Werre, 2003). The definition of the ambition level is based on the motivation behind corporate sustainability, the decision-making process, and the organisations relationship to stakeholders and society (Marrewijk and Werre, 2003). In general, there are two types of strategy for corporate sustainability, the first one is the elimination of negative effects on the environment and on society. The second one is to take responsibility to contribute to the goals of sustainable development (Baumgartner, 2009). Different ambition levels have also been observed in the

interviews. Some of the companies are highly motivated and try to consider the goals of sustainability in all business activities. Other companies are only interested in meeting the legal requirements. Due to the different ambition levels and stages of development, the framework "has to be adapted to the company and its specifics" (Company K1): *Requirement 8: The framework needs to be customisable to the specifics of a company.* Also the value system, the circumstances, and the environment in which an organisation operates have to be taken into account, because not every company has the same potential for corporate sustainability (Eccles et al., 2012, Kiron et al., 2015, Marrewijk and Werre, 2003). The respondents of the interviews confirmed the insights from the literature. From this follows that the consideration of the corporate culture, *Requirement 9: The framework needs to allow the corporate culture to be considered during the application,* as well as the surroundings and extraneous factors, *Requirement 10: The surroundings and extraneous factors of a company need to be considered within the framework,* are a requirement for the framework. "You have to look outside the processes, take the surroundings and extraneous factors into account, to cover all necessities" (Company C3). The challenge is that the integration approach needs to consider the context specifics (Bonini and Görner, 2011), without being too superficial. The literature review showed that this is a problem that has not been solved, yet.

In the literature leadership and employee engagement are named as success factors (AccountAbility, 2008, Eccles et al., 2012) for the integration of sustainability. However, the current state in the companies interviewed is that nearly all have major difficulties with engagement of leadership and employees. "It is not clear to many employees that the company is engaged in this area" (Company G1). They lack commitment, which makes the execution of the



formulated sustainability strategy very difficult. One reason for this might be that they struggle to communicate sustainability throughout the whole company. They do not have the resources or the right tools for the communication. Hence, the framework should also support the communication and support companies to reach a broad employee engagement and to spread sustainability through the company, it should offer a clear understanding *Requirement 11: The framework should support the internal marketing of sustainability throughout the company.*

The table (Table 17) below gives an overview of all requirements that emerge from the interviews and the literature review.

<i>Requirement 1</i> The framework needs to support the integration of corporate sustainability into business processes.
<i>Requirement 2</i> The integration of corporate sustainability needs to be linked to the value chain.
<i>Requirement 3</i> The framework should allow identification of the performance gap of business processes regarding sustainability.
<i>Requirement 4</i> The framework needs to present a structured and systematic approach for the integration of corporate sustainability into business process management.
<i>Requirement 5</i> The framework should provide a definition for corporate sustainability on the operational level.
<i>Requirement 6</i> The framework should support the definition of sustainability goals, including key figures.
<i>Requirement 7</i> The framework needs to be flexible.
<i>Requirement 8</i> The framework needs to be customisable to the specifics of a company.
<i>Requirement 9</i> The framework needs to allow the corporate culture to be considered during the application.
<i>Requirement 10</i> The surroundings and extraneous factors of a company need to be considered within the framework.
<i>Requirement 11</i> The framework should support the internal marketing of sustainability throughout the company.

*Table 17 Requirements for the Framework*

Taken as a whole, the framework that is going to be developed needs to serve different purposes. First the integration of sustainability into the business process management, to connect these two topics. The framework should help, through an analysis of the business processes, to detect the different areas where processes need to be improved and it should also support the integration itself. It also should support companies to carry out the integration in a structured and systematic manner.

On the one hand the value of the framework that is going to be developed lies in meeting the companies' demands and thus supporting them to meet their sustainability goals. On the other hand, it is going to make the companies become active in the area of sustainability. It is not the framework itself which generates additional value but the actions of companies that it leads to.

In the next section the development of the framework itself will be described.

## **5.5 Development of the Framework**

As already mentioned in the previous chapter, the literature review about corporate sustainability showed several sources, including Rozman et al. (2015), Fistic et al. (2014), and Ghose et al. (2010), who assume that the integration of sustainability should be done through business process management.

This chapter presents the development of a new framework to support companies to integrate sustainability into business process management. Different aspects are going to be taken into consideration. First of all the specifications deduced from the conducted interviews (see Chapter 5) and the literature review (see Chapter 2) about corporate sustainability and BPM which are presented in Section 5.4.

The framework to be developed is based on an existing framework. By using an existing framework as a foundation, the understandability of the new framework can be increased, especially for persons familiar with the previous framework. The aim is to increase quality by using an existing framework with a comparable purpose. Furthermore, it will help to ensure the completeness of the new framework, by using the established structure of the existing framework.

The corporate sustainability model (Figure 24) displays the complexity, the interconnectivity, and the transdisciplinarity of corporate sustainability and was designed with the purpose of giving managers the possibility to manage and measure corporate sustainability (Epstein and Buhovac, 2014). This framework was presented in Section 2.1.5.4. However, it will be taken up at this point again, in order to present the development process in a whole. The corporate sustainability model is a tool for the implementation of corporate sustainability (Epstein and Buhovac, 2014). This purpose of the corporate sustainability model recommends the use of it as basis for the development of a framework to integrate sustainability into business process management. Although the existing model does not describe the implementation itself it “describes the drivers of corporate sustainability performance, the actions managers can take to affect that performance, and the consequences of those actions on corporate environmental, social, economic, and financial performance” (Epstein and Buhovac, 2014, p. 29). By understanding the drivers and their impact on the performance, the integration of corporate sustainability into the daily operational decisions is supported (Epstein and Buhovac, 2014). Furthermore, the framework is designed as a business process, hence the framework that is going to be developed will describe the integration of sustainability into business process management in the manner of a business process. The advantage will be that this is a way that is used to managers.

The framework that is going to be developed will be based on the existing framework “Corporate Sustainability Model” of Epstein and Buhovac (2014). Especially the feedback loop is an element that seems to be quite important for the integration of sustainability. As well the process structure of the existing framework is quite helpful as a fundament for the development of a framework for the integration of sustainability into BPM.

Through the conducted literature review no comparable framework could be found that would be suitable as a foundation for the development of a new framework for the integration of sustainability into BPM.

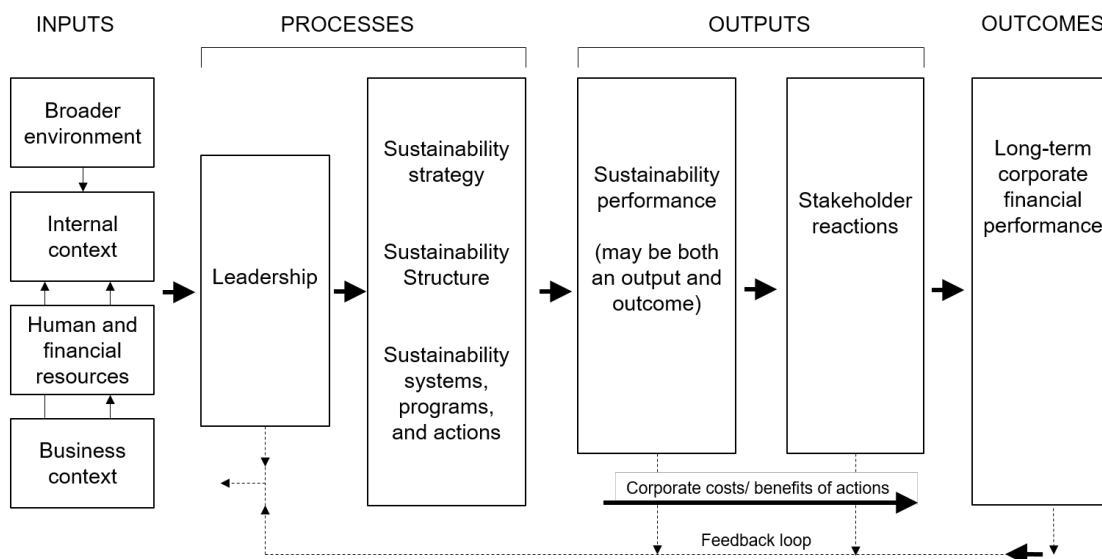


Figure 24 Corporate Sustainability Model (Epstein and Buhovac, 2014, p. 30)

For the framework to be developed, the structure of the corporate sustainability model will be adapted. The framework will have the same four parts: inputs, processes, outputs, and outcomes. The structure of the new framework will be the same as the structure of the framework, although the content of the boxes is different.

The existing framework has to be changed since it does not focus on the integration of sustainability, it rather focuses on the financial performance of the

company. For the guidance, that companies need on sustainability processes it only names 'systems, programs, and actions'. Considering the requirements defined in Table 17, it meets *Requirement 8*, to be customisable to the specifics of a company, since it is very generic. Further it meets Requirement 10, it considers the broader environment within the inputs. Other requirements are not met by the existing framework.

Factors that need to be taken into consideration for the definition of sustainability goals are called inputs from here on. These are derived from the conducted interviews. First and foremost, most of the companies named legal regulations as an important driver. Abiding by legal regulations is mandatory and thus needs to be integrated into business processes. For some interviewed companies, legal regulations are the only input factor that is considered in the context of corporate sustainability.

The second input factor that is influenced by legal regulations is corporate strategy. In some way all of the interviewed companies have a corporate strategy for sustainability. However, the strategies are on different levels of development. Some companies still only define the TBL as their corporate strategy for sustainability. Others define their corporate strategy in much more detail, adjusted to the company's specifics, to make it applicable. Although companies still struggle with the development of a sustainability strategy and the integration of it into the overall corporate strategy. This is not part of the research, since there are existing approaches for this purpose, like the Sustainability Balanced Scorecard (Figge et al., 2002). Nevertheless, the corporate strategy needs to be an input factor to define the sustainability objectives the company wants to achieve.

The third relevant input factor that needs to be considered for the integration of sustainability into the business process management is the results of a stakeholder analysis, this is in line with *Requirement 10*. As the interviews showed, many companies use this tool to adopt the stakeholder's interests in their sustainability strategy.

The final input factor is reporting standards. Like the corporate strategy they are influenced by legal regulations and have an important impact on the corporate strategy themselves. The interviews showed that especially companies that are at the beginning of the integration of sustainability use reporting standards as a guideline since they give an overview of the most relevant topics.

Besides the input factors that are necessary for the definition of the sustainability objectives, business processes are mandatory for the following processes. Additionally, the interviewed companies required the framework to be linked to the value chain, *Requirement 2*, this will be considered through using the business processes.

In summary the framework has the following input factors:

- Legal regulations
- Corporate strategy
- Stakeholder analysis
- Reporting standard
- Business processes

The second substantial part of the framework of Epstein and Buhovac (2014) is processes. Regarding the framework that is developed in this thesis it has to be translated to the sustainability integration process.

The sustainability integration process has been derived from different aspects. The groundwork is built by the companies' approach that has been derived from the interviews (see Figure 23 Sustainability Integration Approach). Additionally, relevant requirements defined with respect to the literature review and the conducted interviews are used. Finally the management cycle of Hammer (2015) is included. The main purpose of this part of the framework is to meet *Requirement 1*, to support the integration of sustainability into processes.

The first part of the sustainability integration process is the identification of the performance gap of the processes regarding sustainability, in line with *Requirement 3*, it should follow Hammer's management cycle. The first part of this cycle focuses on the definition of the performance target and the identification of the processes' performance gap. The following steps deal with the evaluation of the sustainability of existing processes. Analogous to the definition of the performance target the sustainability goals have to be formulated, considering the input factors defined beforehand. This step serves *Requirement 6*, the definition of clear goals deposited with key performance indicators.

Part of the definition of a performance target is the assessment of the relevance of each goal as well. The next step needs to be the evaluation of each process regarding the defined performance target. In this context the performance gap is defined as the processes' impact on the set goals. For the assessment of the impact a comprehensive understanding of the processes is necessary, therefore the process model can be used. Although different process modelling techniques exist, not all of them are suitable for the analysis respectively the identification of the gap. For this purpose, a descriptive model should be selected that enables the analysis and supports the process development towards sustainability



(Aguilar-Savén, 2004). A descriptive modelling technique is BPMN, for example (Object Management Group, 2011).

The final process for the sustainability evaluation of processes is displayed in Section 5.6.2.

As it is part of Hammer's management cycle, also in this process the benchmarking with competitors needs to be included. The corporate sustainability evaluation should include the results of the process evaluation as an input, because they show to what degree the sustainability objectives are positively impacted by the business processes and accordingly how well sustainability is integrated in this part of the company. However, this is not sufficient for an evaluation of the entire integration of sustainability into the company, therefore additional parameters like the strategy or the governance need to be taken into consideration. While it is not part of the framework to provide a maturity model for the integration of sustainability into the corporation, the framework can provide references to existing maturity models for this purpose.

The next step of the sustainability integration process, presented in Section 5.6.2 in Figure 26, is the development of a sustainability road map. On the one hand this step is derived from the management cycle of Hammer, which calls this step the development of an intervention plan, on the other hand from the actual approaches of the companies, deduced from the conducted interviews.

The last step of the process is the reengineering of the business processes. This step is very essential for the success of the entire process. Because the quality of the reengineering decides to what degree sustainability will be integrated into the business processes. Process reengineering is also part of the management cycle and to some degree part of the actual approach of the companies, although

so far they struggle to translate their sustainability projects into their processes. This is due to the fact that they are unable to connect the objectives of sustainability with the performance of their business processes.

To sum up, the sustainability integration process covers the following sub-processes:

- Sustainability evaluation of processes
- Corporate sustainability evaluation
- Sustainability road map development
- Process reengineering

The entire process, including the sub-processes will be presented in Section 5.6.2.

The third and fourth parts of the framework are the outputs and outcomes of the conducted process. They are derived from the previously described processes. The sustainability evaluation of processes will have the sustainability performance gap of processes as a result. A successful corporate sustainability evaluation will give insights about the maturity of the company regarding the sustainability integration. The sustainability road map will be the result of the sustainability road map development. Finally, the process reengineering will result in improved processes, regarding their impact on the defined sustainability objectives. The outcomes of the process and the outputs will be improved sustainability performance due to an improved integration of sustainability into the processes, which is a further outcome of the sustainability integration process. Finally, the benchmarking possibilities can be named as an outcome, although the framework does not present a maturity model for the evaluation of the integration of sustainability into the company.

To serve *Requirement 7* the framework needs to be flexible. Further the framework includes a feedback loop, to be iterative and to be able to proactive consider developments within the sustainability discussion.

In general, the framework is designed generically to consider *Requirement 8* that it should be customisable to the company.

In the next section the framework will be presented.

## **5.6 Framework**

It is the goal of this framework to present the companies with a method to integrate sustainability into business process management. Besides describing the necessary processes that have to be carried out, the framework demonstrates which inputs have to be taken into account and which outputs and outcomes the companies can expect from it.

The framework is designed for sustainability managers to structure their work regarding the integration of sustainability. If no sustainability manager is appointed, it is necessary that someone else is in charge of the activity. As the interviewed companies reported that the definition of a responsible person is a relevant success factor regarding the integration of sustainability.

The framework is shown in Figure 25.

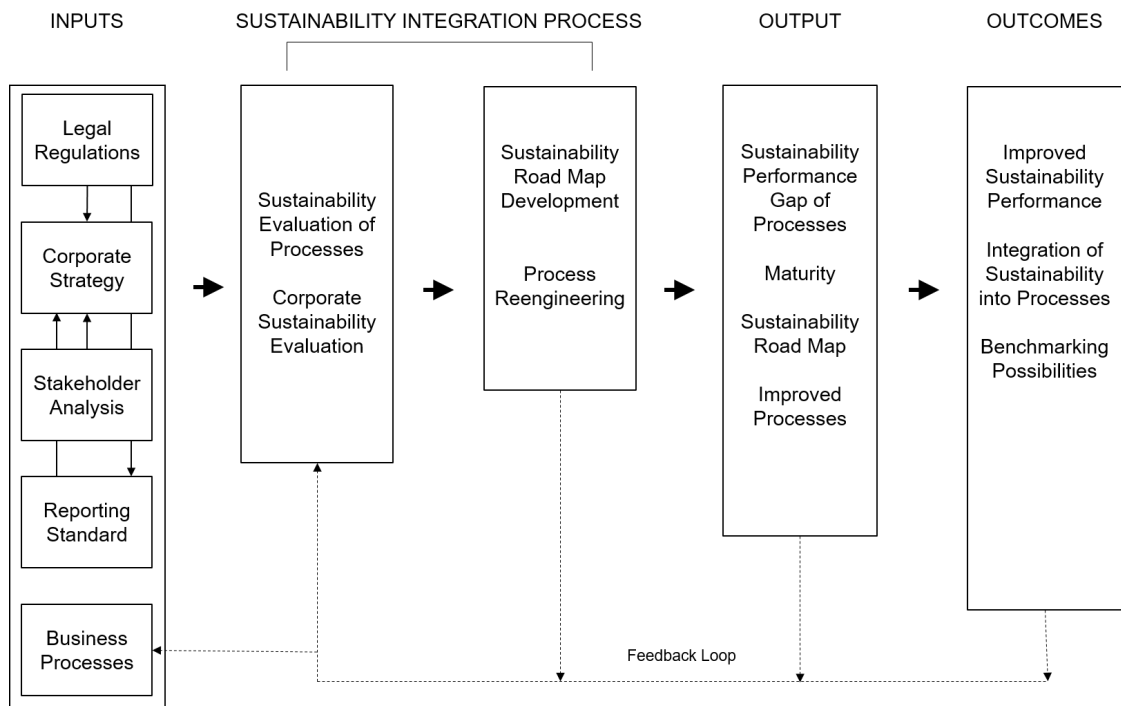


Figure 25 Framework for Sustainability Integration through Business Process Management

The inputs cover the different factors that need to be considered when integrating sustainability into the business process management. The factors that are of importance considering sustainability are any relevant legal regulations, the corporate strategy regarding sustainability, the results of a stakeholder analysis, and the existing reporting standards, such as the GRI (which is described in Section 2.1.5.4). It goes without saying that beside the factors mentioned above, the existing business processes are an input for the sustainability integration process.

The second part describes the *Sustainability Integration Process*, which is superordinate to four separate processes, which are connected to each other. The sub-processes are Sustainability Evaluation of Processes, Corporate Sustainability Evaluation, Sustainability Road Map Development, and Process Reengineering.

If companies go through these steps successfully they can generate the following outputs and outcomes. The Sustainability Evaluation of Processes leads to the identification of the Sustainability Performance Gap of Processes.

Through the evaluation of corporate sustainability a company will be able to define the level of maturity. Further outputs are a sustainability road map and improved processes.

Outcomes the company will achieve are improved sustainability performance, benchmark possibilities, and of course the integration of sustainability into business processes.

The final part of the framework is made up of the feedback loop, which is necessary, since the integration of sustainability is an ongoing process.

The main parts of the framework, Inputs, Sustainability Integration Process, Output and Outcomes and Feedback will now be described in further detail.

### **5.6.1 Inputs**

Two different kinds of input exist: input regarding sustainability and input regarding business processes.

Each company needs to define the objectives it wants to reach relating to sustainability. These objectives should be part of the corporate strategy and have to be defined in consideration of the different inputs. Hence the input “Corporate Strategy” represents the central element.

First of all, different legal regulations have to be taken into account when developing a corporate strategy for sustainability, since they legally have to be met by an organisation.

The second input that is mandatory for defining sustainability objectives is the result of a stakeholder analysis, which is used to identify the stakeholders' key interests (Grimble and Wellard, 1997, p. 175). Most of the time it is combined with a materiality matrix. For this purpose the matrix developed by Bellantuono et al. (2016) can be used, which is mentioned in Section 5.2. In this matrix any aspects are assessed regarding their impact on sustainability and their influence on stakeholder decisions (Bellantuono et al., 2016, p. 379). In context of sustainability it is important that the entire society as well as the environment have to be viewed as stakeholders. For example, critical stakeholders like environmental organisation have to be taken into account. Key aspects that are defined by the stakeholder analysis should be considered during the development process of the corporate sustainability strategy.

Reporting standards should be incorporated since they give an overview of the topics that need to be covered while integrating sustainability. One example for a globally accepted reporting standard is the GRI. It lists different performance indicators that have to be reported regarding sustainability, differentiated according to the TBL. This adds a structure to the development of a sustainability strategy without missing relevant aspects. Additionally, reporting is gaining more importance. For one, companies listed on the stock exchange are legally bound to publish a sustainability report. Furthermore, the public is increasingly interested in receiving information on companies' sustainability activities. Most of the time reporting standards already cover important legal regulations.

As a matter of fact, business processes have to be an input factor, when aiming at integrating sustainability into them.

### **5.6.2 Sustainability Integration Process**

In Figure 26 “The Sustainability Integration Process” is displayed, the central element of the developed framework. The sustainability manager is mainly responsible for this process. If a company does not have such a position, a sustainability manager has to be appointed. In the following it is assumed that this position is occupied.

The starting event of the process is the corporate sustainability strategy. This strategy is valid for a certain period most of the time and it provides the goals that have to be reached. It indicates a direction, which is then put into action in the next steps on the operative level.

With the strategy as an input, the first step of the process is the sub-process “Sustainability Evaluation of Processes”. The output of this process step is an evaluation of all processes regarding their impact on the sustainability objectives. This makes a definition of the performance gap of each business process possible.

The evaluation results of all processes should be input for an overall evaluation of the corporate sustainability.

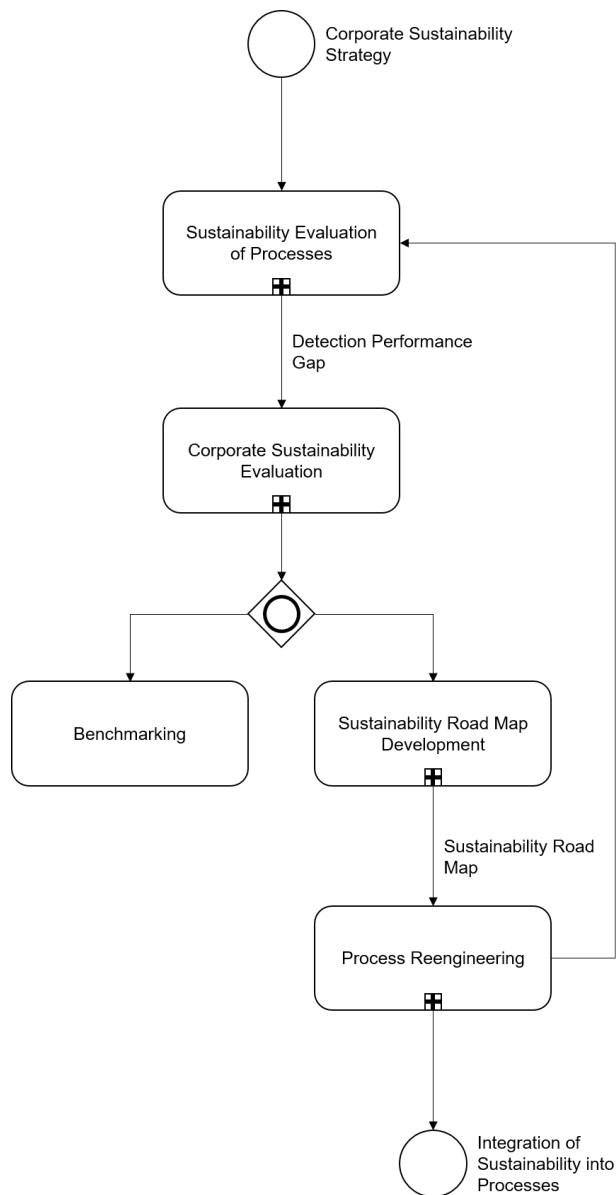


Figure 26 The Sustainability Integration Process

The results of this evaluation are an important input for the development of a road map, which is a further sub-process of the sustainability integration process. Output of this process is a road map for the reengineering of the processes in order to reach an improved sustainability performance.

The last step is the sub-process “Process Reengineering”. It aims to close the performance gap. Existing methods can be used for this purpose. Hence the output of this process step are improved business processes which have a positive impact on the defined sustainability objectives. It will not be possible to



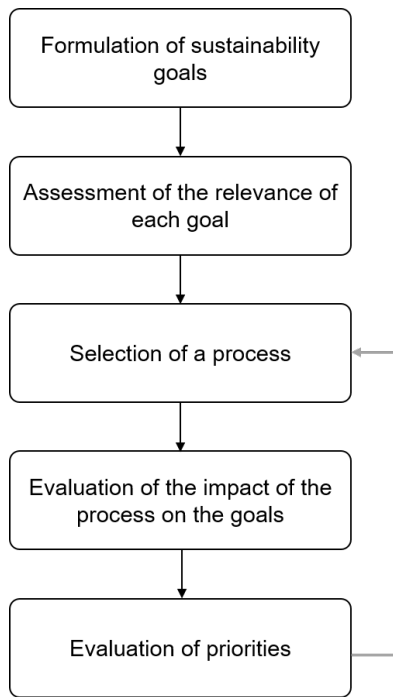
improve all processes at the same time and to the same degree, since the processes interact with each other. However, the described progress leads to the integration of sustainability into the processes. This link is made at the beginning, since the evaluation of processes regarding the sustainability goals has already been performed. The final process reengineering aims to close the performance gap that has been detected beforehand.

In the following the sub-processes are going to be described in further detail.

### *Sustainability Evaluation of Processes*

The strategy serves as an input for the first step of the process, the sub-process “Sustainability Evaluation of Processes” (Figure 27).

The first step of this process is the description of the sustainability goals. Therefore, legal regulations, the corporate strategy, which is the main input for this process, and reporting standards should be taken into account. Responsible for this step should be the sustainability manager and the higher management to ensure the commitment of these. It is essential that the goals are defined precisely enough so that the impact of the process on them can be evaluated. Second, the relevance of each goal has to be assessed. Again, the strategy and legal regulations have to be considered since goals that have been deduced from legal regulations are of great relevance. In order to improve sustainability performance, it is essential to give sustainability goals a high priority, since there is a certain risk that the management pays only little attention to sustainability. Thus, a company could go through from top to bottom without doing anything to improve sustainability. Since this is a strategic assessment, the sustainability manager and the higher management are responsible, as well.



*Figure 27 Sustainability Evaluation of Processes*

After assessing the relevance of the goals, the processes to be evaluated are chosen. This decision has to be made by the sustainability manager and the manager of business processes. The value chain should be of high priority due to the link between the sustainability performance and the value chain of the company. More exact recommendation for the prioritization cannot be given since this depends on the specifics of each company and on the degree to which the sustainability manager is able to define critical processes. However, for a holistic integration of sustainability the evaluation should be done for each process.

Following this is the evaluation of the impact of the process on the goals. Therefore, the process description including activities, resources, inputs, and outputs need to be considered. Responsible for this process step are the sustainability manager and the process owner. The person responsible for the integration needs to provide the information necessary for the evaluation. The result of this process step plus the prior assessment of the relevance of the goals make an evaluation of the priorities possible.

In sum the result of the sub-process “Sustainability Evaluation of Processes” is an assessment of all processes regarding their impact on sustainability goals. This allows a definition of the performance gap of each business process as well as a prioritisation which processes need to be revised. There will need to be more support for companies on how to audit sustainability of their processes, such as auditing waste streams, energy use, to name a few. It will also be needed for social and economic aspects. Since these are matters specific to each company, this will have to be done in further research and it would be out of scope of this thesis.

### *Corporate Sustainability Evaluation*

The development of a maturity model for the integration of sustainability into the organisation was not part of this research. However, it is an element of the entire process due to the fact that the maturity has a relevant impact on the further proceeding. The level of maturity decides how the road map for the integration of sustainability should be designed.

Different maturity models for the integration of sustainability into the corporation already exist. For example the Business sustainability maturity model by Cagnin et al. (2005), which aims to support companies by definition of their sustainability strategy. Nidumolu et al. (2009) presented a five-stage path to become sustainable. The maturity levels for corporate sustainability strategies by Baumgartner and Ebner (2010) is another maturity grid for the development of a sustainability strategy. Kane (2012) offers a maturity model for sustainability practices in organisations. Due to the complexity of sustainability, the maturity model focuses on the environmental aspect.

None of the existing models evaluate the integration of sustainability on the operational level. This has to be the focus of further research.

Even if no existing maturity model is used for evaluation of corporate sustainability but only the results of the process evaluation are taken into account, there will be companies on level C, these are companies with the lowest rating regarding the level of integration of corporate sustainability. These companies own a lot of processes with a negative impact on sustainability. There will be companies on level B, which have an equal amount of processes with positive and negative effects on sustainability. Finally, there will be companies on level A with hardly any processes with a negative effect on sustainability. However, this categorization alone, even without the evaluation of maturity, has an impact on the design of the road map for the integration of sustainability since companies on level C have to undergo fundamental changes of their processes compared to companies on level B and A which mainly need to adjust existing processes.

#### *Sustainability Road Map Development*

General recommendation for this process step cannot be made, since the development of a road map is specific to each company. However, some influencing parameters have to be taken into account when developing a sustainability road map: results of process evaluation, relevance of sustainability goals, modification complexity and effort, influence on customer satisfaction, availability of resources, prospect of success.

The sustainability road map should include specific actions, alongside with key performance indicators. The actions should be developed based on the results of the process evaluation. The actions listed in the road map should be prioritized to allow the company to develop a plan of action for the integration of sustainability. It should include deadlines for each defined action as well as a responsible person.

### *Process Reengineering*

The goal of this sub-process lies in closing the performance gap that has been detected in the first process step. Since process reengineering is already well established and companies do not seem to have an issue with this step, which has been confirmed throughout the interviews, a description in further detail does not seem necessary. In Section 2.2.3 Methods, different literature that addresses process reengineering can be found.

### **5.6.3 Outputs and Outcomes**

After running through the entire sustainability integration process, different outputs are generated. The first sub-process defines the sustainability performance gap of processes. If the second sub-process is fully developed or an existing maturity model is used, it allows the definition of maturity. The sustainability road map is the output of the third sub-process. The overall goal of the process is the integration of sustainability; consequently, if the process is successful the output of the last process is improved processes, with respect to sustainability objectives.

The outcomes of the sustainability integration process are described in the following.

A company's sustainability performance, consisting of social, environmental, and economic performance, is influenced by its actions at all times, either in a positive or in a negative way (Epstein and Buhovac, 2014). As defined in the framework the objectives are defined by different inputs like internal and external stakeholders. Through the integration of sustainability into the processes, which is one of the outcomes of a successful execution of the defined process, the sustainability performance is going to be improved. First the integration process aims to identify the performance gap of processes regarding sustainability goals and subsequently the closure of the identified gap. The processes are improved regarding their impact on sustainability objectives and thus the overall sustainability performance of the company is improved.

As a result, the framework will give companies a benchmarking possibility through the evaluation of the performance gap of processes regarding sustainability and the evaluation of the maturity of the organisation regarding sustainability. The framework does not provide a new maturity model. Accordingly, benchmarking is only possible through using an existing maturity model. Hence benchmarking always requires other collaborating companies.

The remaining part is the feedback loop, which will be described in the following section.

#### **5.6.4 Feedback**

Sustainability is subject to an ongoing development as well as the goals that have to be reached (Epstein et al., 2018). Thus, it is essential to run through the aforementioned process iteratively. Furthermore the underlying idea of the PDCA cycle (Deming, 2000) should be applied to the framework as it is already being used in companies in context of sustainability, as the conducted interviews showed. This concept is represented by the feedback loop.

The constant challenging and questioning of an approach is a very important aspect. This requires an appropriate management as well as the consideration of relevant changes regarding input factors which affect the defined sustainability objectives. An iterative approach is necessary for continuous improvement when using the framework. The PDCA cycle has to build the basis for this at all times.

In this chapter the interviews are examined in two different ways. At first, a set of codes, that represents the major themes, is worked out. This is followed by an analysis of the response to each individual interview question. These results are then brought together in the main findings of the interviews.

These findings, alongside the discoveries within the literature review make up a set of requirements for the development of the framework. In the second part of this chapter the specific development of the framework is presented and explained in detail.

The subject of the following chapter is the validation of the framework, which builds on the set of requirements developed within this chapter.

## 6 Validation of the Framework

In this chapter the validation of the framework will be described. The first section will deal with the data collection, in the second section the results of the validation interviews will be presented and in the last section of this chapter the main findings within the results will be summed up.

### 6.1 Data Collection

For the validation managers from five companies were interviewed. Three of the companies had already been part of the first phase of research, companies A, D and H. An additional two companies were included that were not part of the first phase to gather new insights and to make sure that the developed theory can be transferred to cases that were not studied in first instance and that were not part of the data used for the theory development. Transferability is one of the defined quality criteria for qualitative research (Lincoln and Guba, 1985).

The table below describes the participants that were part of the validation.

<i>Company</i>		<i>Industrial Sector</i>	<i>Number of Employees</i>	<i>Interviewee Position</i>	<i>Interviewee Seniority</i>
Company A	A	Communication Technology	> 10,000	Manager Sustainability	11 years
Company D	D	Building Sector	> 4,600	Manager Sustainability	11 years
Company H	H	Packaging Industry	> 24,000	Manager Environment	15 years
Company P	P	Office Supplies Industry	> 250	Manager Business Process Management	4 years
Company Q	Q	Commercial Vehicle Industry	> 50,000	Manager Environment and Safety	15 years

*Table 18 Description Sample - Validation*

The documentation of all five interviews can be seen in Appendix U to Appendix Y.



The interviews were conducted via phone or on-site between May 11<sup>th</sup> and June 5<sup>th</sup> 2018 and took 60 to 120 minutes. For the validation semi-structured interviews were conducted using a questionnaire developed previously. The methodological approach for the validation is described in Section 4.6. The interviews were documented in written form during the discussion.

The same approach to the determination of the number of interviews for the validation was chosen as for the first set of interviews. The interviews were conducted until no new information came forth (Gummesson, 2003). After conducting five interviews enough information had been gathered to validate the developed framework.

In the next section of this chapter the results of the validation interviews will be presented in detail.

## **6.2 Results**

In the following each question of the questionnaire will be listed including the relevant answers of the companies.

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Except Company P, all interviewed companies agreed that the integration of sustainability is still a relevant problem. Three answered that they strongly agree to this question, one company agreed.

Company P was not able to answer the question because sustainability has no high significance to the company, they only become active if there are relevant legal regulations or customer requirements.

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability? Is there anything relevant missing?*

Four of the interviewed companies stated the description of the results represents the actual problem. Company P was, consequently to the first answer, not able to answer this question and to evaluate the quality of this description.

The results represent the current problem. They are describing the integration of sustainability as a process that is evolving at a fast pace. Company H which has a lot of experience in this field noticed similar problems as mentioned in the problem description. According to their expertise there has been a lot of emphasis on the environmental aspect in earlier days. Today especially the social aspect is becoming more and more important. They still think that this topic will remain a problem for which experts and resources are missing to this day.

Referring to the problem description Company Q agreed on the named problems and emphasised that the alignment of the overall strategy and the strategy for sustainability is still a major problem in their company.

Companies D and H found there was nothing missing in the problem description. Company A, however added that governance plays an important role since most of the time it is not clear who is responsible for sustainability. Additionally, no responsible person has been defined in each of the company's sections. Since sustainability affects all parts of the organisation that would be crucial to accomplish.

Company Q did not miss anything essential but made a few additions. Shareholders are an important trigger for the integrations of sustainability because it gains more importance in ratings of companies listed on the stock exchange. Furthermore, sustainability is a very complex topic and the integration

of its different parts are on different stages of development. This makes the management more difficult. Regarding this problem, it can be observed that on the operational level the integration of sustainability is moving forward but the engagement of the middle and higher management needs to be improved. The company's respondent (Company H) stated that performance indicators are not an adequate management tool for sustainability, because the central element of sustainability lies in the company's adaptation to future developments rather than in the analysis of what is already happening.

*How is your overall impression of the framework?*

All of the companies were positive about the framework and called it very conclusive and logical. Company A, which had already applied some aspects, put emphasis on the importance of the feedback loop and the fact that the integration is a continuous process. The goals that have to be defined should be process specific.

According to Company D the framework displays the necessary actions on each level and includes the logic of the PDCA cycle.

The respondent from Company H mentioned that the complexity of the integration of sustainability is captured very well by the framework and the company itself is reflected in the framework. The development and application of the framework are also very comprehensible and the main steps to become sustainable are presented. The company is already classifying its suppliers and customers regarding the maturity level.

Company P which had not put much thought into sustainability so far, called the framework comparable to the implementation of BPM. According to its representative the step from the framework towards the application still needs to be done.

To the interviewee from Company Q the integration of maturity was very exciting. PDCA is already used within the company but the goals of development are not defined. The representative sees a necessity in measuring the company's development as well as a possibility of applying the framework.

*How would you assess the applicability of the framework?*

The companies A, H, P and Q assessed the applicability as very good, Company D assessed it as good.

Company H which has a lot of experience in this field would proceed in the same way to integrate sustainability although the framework does not present a detailed guidance. Likewise, Company P found the applicability of the framework very comprehensible and emphasized that the important inputs are named and sees the controlling via KPI as very reasonable. According to its representative the goals should be specifically defined for each employee.

Company A which assessed the applicability as very good added that some preparation before the evaluation of each process might be useful. This includes the pre-selection of goals and the provision of necessary information to the process owners.

The necessity of defining responsible persons to carry out the steps of the framework is mentioned by Company Q as the basis for the application of the framework. The company also has to decide which process level needs to be considered.

*Does the framework help to overcome the existing difficulties?*

Company H and Q strongly agree, and companies A, D, and P agree.

Company A based its answer on the fact that the framework helps to identify the relevant topics, to evaluate each process, to build awareness and to increase the significance of sustainability as a consequence. The framework serves as a theoretical foundation for the integration of sustainability. Company Q went one step further by considering using the framework for the development of a new sustainability strategy. Company P and Company A agreed on using the framework on a strategic level.

*Does the framework meet the identified requirements?*

- *Allows to detect the performance gap of business processes regarding sustainability*

Company D strongly agreed, while companies A, H, P, and Q agree.

The companies stated that the framework helps to structure the approach. However, it is still necessary to define the goals and the relevance of each goal which seems to be the most difficult step because a lot of data is necessary and conflicting targets need to be considered. As a consequence, the framework gives an approach, but the results depend very much on the individual user.

Company Q added that it might be useful to also consider the main purpose of the process.

- *Supports the integration of sustainability into processes*

Except for Company P which agrees the remaining companies strongly agree that the framework meets the requirement of supporting the integration of sustainability into processes.

The problem is considered in its whole complexity and one will know how the business processes influence the sustainability goals (Company H). The framework displays the connection of sustainability and BPM for all steps (Company Q).

- *Provides a means of benchmarking*

Company P did not answer the question. Companies A, H, and Q partly agreed, because the provision of a means of benchmarking can only be done on a superficial level (Company H) and a benchmark is only possible on the process level (Company Q). Company D strongly disagreed because processes are not comparable, and the assessment is too subjective in their opinion.

- *Promotes the internal marketing of sustainability throughout the company*

The answers to the question, if the framework meets the requirements are diverse. Company Q strongly agreed, Company H agreed, Company A was undecided and companies D and P disagreed.

Company D holds that the promotion of sustainability is an emotional topic which should be done in a different manner. According to them it is more about story telling. Company P also saw communication as a separate topic which has to be dealt with on the content level and not on the strategic level.

Through the application of the framework employees are confronted with the topic (Company H). Company Q advanced the view that the framework helps to make the topic more systematic and believable, through the definition of the right starting points. It gives a frame to the problem of integrating sustainability and this will support the communication with employees and especially the communication with the management.

- *Retains the legibility of processes*

Companies A, D and P strongly agreed, Company Q agreed, and Company H did not answer the question because the respondent stated that it depends on the reengineering of the process. Company P agreed on this statement that processes are only changed during process reengineering.

- *Needs to be flexible*

The companies answered this question differently. Company H strongly agreed, companies A and Q agreed, Company P partly and Company D disagreed.

Company D denied that the framework is flexible because the framework itself is static. The difficulties lie in the application of the framework which gives guidance itself; that is why Company P sees flexibility partly considered. If it is proceeded as a continuous process and if the actions are prioritised accordingly flexibility will be considered (Company P, Q)

Company H strongly agreed that the framework meets the requirement. Through the integration of sustainability into processes it becomes part of the daily work.

- *Provides a definition for sustainability*

To the question 'does the framework help to define sustainability', Company A and H strongly agreed, Company Q partly, Company D disagreed, and Company P did not answer this question due to the fact that the company did not consider finding a definition until now.

Company D disagreed that the framework provides a definition for sustainability, because it raises a lot of questions at first sight. Nevertheless, these questions will support companies in finding a definition.

Company Q had different point of view on sustainability, consequently they have a different kind of definition for it. They see sustainability as something the company can make a contribution to but the company itself cannot be sustainable. The maturity level, as part of the framework, can be used to measure the degree of contribution and gives a kind of definition for sustainability.

As Company H stated, each model and sustainability definition needs to be adapted to the company's specifics. The employees need to be part of this process and they must understand the definition to secure a successful execution of the process to integrate sustainability.

- *Supports the definition of clear goals deposited with key figures*

Only Company A strongly agreed that the framework meets the above named requirement, Company D agreed, Company P partly and Company H and Q disagreed, due to the fact that more effort is necessary. As already mentioned, Company Q holds the view that performance indicators do not play an important role for the sustainability management. They use the SDGs and compare them with their degree of maturity.



Company A agrees because the framework makes clear which are the most important issues.

- *Is customisable to the company and the specifics of the value chain*

The companies A and P strongly agreed, companies D, H and Q agreed. This is due to the high degree of abstraction of the framework.

- *Is linked to the value chain*

Company D strongly agreed, companies A, H and P agreed, and Company Q partly agreed. Company Q recommended to emphasise the link more strongly, especially for companies that are less process oriented. Also, cross-functional processes should be considered.

Company H also recommended that the link to the value chain should be emphasised more.

The generality of the framework allows that it can be adapted to each company and each branch (Company D).

- *Is included in the current system*

Except Company Q which agreed all other companies strongly agreed that the framework can be included in the current system. The reason therefore is that the framework is based on things the companies already know and that all companies had no problem understanding it. The links to the current system were obvious to the companies.

- *Considers the corporate culture*

The generality of the framework is the main reason why the respondents agreed on the statement that the framework considers the corporate culture. Still, the premises for the application of the framework must be given.

Companies A, D and P strongly agreed, Company H agreed, and Company Q partly agreed.

- *Considers surroundings and extraneous factors*

Company P strongly agreed, and the remaining companies agreed on this statement. Although Company Q emphasised that the stakeholder analysis has to be conducted properly and the framework should name all relevant stakeholders including critical ones. Company H argued in the same way and therefore recommended a risk analysis.

- *Is structured and systematic*

All interviewed companies strongly agree on the statement that the framework is structured and systematic.

- *Is easy to understand*

The respondents of the validation interviews had no difficulties understanding the framework, accordingly they strongly agreed to the above requirement of the framework.

- *Is transparent*

The framework is transparent to all companies that have been interviewed. Companies A, D, H and P strongly agreed, and Company Q agreed.

- *Allows the documentation of the improvement project*

The framework itself does not allow the documentation of the improvement project. The companies A, H and Q disagree that the framework meets this requirement. The companies D and P did not give an answer to this question.

- *Allows to identify the relevant topics*

The companies H and Q agree, companies A and P partly and Company D did not answer the question.

The respondent of Company A based the answer on the fact that the framework describes what has to be done but not how. Company Q was of the same opinion that the results depend mainly on the user, to what degree the inputs are analysed. Part of this analysis should be the consideration of chances and risks. However, the main areas that need to be taken into account are presented by the framework (Company H).

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Company A and Q strongly agreed that the framework helps to improve their actual approach. As already mentioned, Company Q stated that the framework will help to improve their actual situation as they have to develop a new strategy for sustainability and the integration of it into the company. Company A emphasized that the guidance that is given by the framework is very helpful. The framework identifies all relevant aspects that need to be considered and points out a way how sustainability can be integrated into business process management.

Company H disagreed on this topic due to the fact that their approach towards the integration of sustainability has been further developed into a different direction. The respondent stated that the framework would have been very helpful three years ago. It is definitely helpful for companies that are at the beginning regarding the integration of sustainability.

Company P could not agree nor disagree due to the fact that they did not have an actual approach towards the integration of sustainability.

*Does the framework help to integrate sustainability on an operational level?*

The companies P, H and Q agreed that the framework helps to integrate sustainability on the operational level, it presents the main steps that need to be accomplished (Company H). The framework shows the relevant interfaces to the operational level and how sustainability should be integrated on that level although it cannot be used to explain the problem (Company P).

Company P had the opinion that the framework is mainly designed to be used by the operations management on a strategic level and not for the concrete application on the operational level because the employees on the operational level will not be able to work with the framework itself.

According to Company Q, the integration depends on the user of the framework. The user needs to possess comprehensive knowledge in this area, this could be the sustainability manager or an external expert.

Company A only agreed partly due to the fact that the doing is still missing.

Again, Company D did not answer this question.

*Where do you see possibilities for the improvement of the developed framework?*

Each of the interviewed companies made different suggestions how the framework could be improved or what needs to be more emphasized within the framework.

Company A as well as Company D recommended that it has to be made clear under which circumstances the application of the framework is possible. A further recommendation of Company A is to use a Sustainability Balanced Scorecard for the definition of KPIs, which as well can be used for the communication with the management. The defined goals could be part of management audits and could be anchored within the target agreement (Company D). A tool to compare processes against each other, to sum up the results of the evaluation, and to consider conflicting targets is seen by Company D as a very helpful amendment to the existing framework.

It was important to Company A to emphasize that stakeholder analysis and materiality matrix have to be the basis for the process evaluation and, as already mentioned, the respondent sees the anchoring within the organisation as a factor of success. Company H as well as Company Q adds a risk analysis as a central element that should also be considered.

Furthermore, Company A added that a detailed description of the process is necessary. If the description is comparable to a process description, it can be integrated into the process map of a company and the process owner will serve as the responsible person for sustainability.

Company Q answered that the sustainability and its integration always has to be directed to the future. The aim is to improve the processes in a way that improves the position of the company in the future. This future perspective should be clearly and obviously integrated into the framework, this would also improve the management approach towards the integration of sustainability. The company needs to develop from a reactive approach towards a proactive approach for the integration of sustainability.

Company Q sees a possibility for the improvement of the framework through further developing the maturity model named in it.

Considering the lack of experience of Company P in the area of sustainability it is comprehensible that they require more details, including best practices and literature recommendations as part of the framework description.

In general, the respondents agreed that the framework helps to overcome existing difficulties, through the identification of all relevant topics. Furthermore, the evaluation of each process is an element of the framework, which is new to the companies in this extent, although companies are quite sure that this will help to improve the actual integration of sustainability. In addition to that, the framework helps companies with building awareness and by that the significance of sustainability can be increased. All respondents view the framework as a comprehensive guideline for the integration of sustainability into business process management.

The following table (Table 19) shows how the defined requirements are met by the framework.

	<i>Evaluation of respondents</i>					
<i>Requirement</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Partly</i>	<i>Disagree</i>	<i>Strongly disagree</i>	<i>No answer</i>
<i>Requirement 1</i> The framework needs to support the integration of corporate sustainability into business processes.	4	1				
<i>Requirement 2</i> The integration of corporate sustainability needs to be linked to the value chain.	1	3	1			
<i>Requirement 3</i> The framework should allow detecting the performance gap of business processes regarding sustainability.	1	4				
<i>Requirement 4</i> The framework needs to display a structured and systematic approach for the integration of corporate sustainability into business process management.	5					
<i>Requirement 5</i> The framework should provide a definition for corporate sustainability on the operational level.	2		1	1		1
<i>Requirement 6</i> The framework should support the definition of sustainability goals, including key figures.	1	1	1	2		
<i>Requirement 7</i> The framework needs to be flexible.	1	2	1	1		
<i>Requirement 8</i> The framework needs to be customisable to the specifics of a company.	2	3				
<i>Requirement 9</i> The framework needs to allow that the corporate culture is considered during the application.	3	1	1			
<i>Requirement 10</i> The surroundings and extraneous factors of a company need to be considered within the framework.	1	4				
<i>Requirement 11</i> The framework should support the internal marketing of sustainability throughout the company.	1	1	1	2		

*Table 19 Evaluation of the Framework with respect to requirements*

The main findings and its implications for the developed framework will be presented in the next section of the chapter.

### **6.3 Findings**

All respondents were positive about the framework. They found it to be conclusive and logical. It was especially pointed out that the framework includes a feedback loop as well as the logic of the PDCA cycle. The interviewees agreed that all necessary actions are displayed. Furthermore, the complexity of the integration of sustainability into business process management is captured very well. However, the companies still view the application of the framework as a difficult and complex step.

In the following it will be shown to what extent the validation criteria defined beforehand in Section 4.6 Validation of the Framework are met. In Section 4.6 the validation criteria were defined: descriptive relevance, goal relevance, operational validity, nonobviousness and timeliness (Thomas and Tymon, 1982) and matched with the interview questions of the validation.

The first defined criterion is the descriptive relevance. The interviews showed that the integration of sustainability is still a quite relevant problem to the companies. According to the companies the findings, presented in Section 5.3, describe the current problems precisely. They view the integration of sustainability as an ever-evolving process. Special emphasis was put on the issue of integrating sustainability into the corporate strategy. Even though the description was thought of as accurate and comprehensive, one company viewed governance as being a part of the actual issue. Conclusively it can be said that the descriptive relevance is given.



The next criterion is goal relevance. The interviewees view the framework as very helpful with the integration of sustainability on an operational level. It presents the main steps and shows relevant interfaces to the operational level. It was pointed out that the framework should be used on a strategic level by the operations management.

Considering the defined requirements, it can be seen that the framework meets most of them, as shown in Table 19 in the previous section. Shortcomings of the framework are the documentation of the improvement project, provision of means of benchmarking, the support of the internal marketing, and the support of the definition of clear goals deposited with key performance indicators. Hence it needs to be taken into consideration that the requirement that the framework should allow the documentation of the process was named by just one company. The provision of means of benchmarking was required by four of the interviewed companies, nevertheless, it could not be met by the framework, due to the reason that the development of a maturity model was not part of the framework development because it lies outside of the scope of this thesis. Six companies demanded the support of the definition of clear goals with key performance indicators. Concerning the validation, it is understandable that two companies did not agree that the framework meets this requirement because the framework does not provide clear goals with key figures. It only gives guidance how to develop them. The most critical requirement of the ones not met by the framework is the requirement to “promote the internal marketing of sustainability throughout the company”; it was demanded by thirteen of the interviewed companies. Two of the companies that were interviewed for the validation did not agree with the requirement. They are of the opinion that sustainability has to be communicated on an emotional level. However, the framework cannot meet this demand since

it has not been designed for that purpose. As shown above the framework meets the validation criteria of goal relevance.

The third property is “operational validity” which refers to the applicability of the framework. Four of the interviewed companies assessed the applicability as very good and one as good. They agreed on the described input factors and on the described process for the integration of sustainability. Company A and Q are sure that they can apply the framework for their company and that it will help them to improve their actual approach. The respondents assessed the applicability as very good and good due to the facts that it is very comprehensible while presenting the complexity of sustainability in particular.

The framework needs to serve the fourth property, the “Non-obviousness”. This validation criterion is not met fully referring to the answers of the respondents. Two of the companies strongly agreed that the framework helps to improve their actual approach towards the integration of sustainability. Company Q, which strongly agreed, stated that they need and will use the framework to improve their actual situation in which they need to develop a new strategy for sustainability. One of the interviewed companies was not able to answer the question since they do not have an actual approach. However, the respondent would agree if the company had the necessity to integrate sustainability. One company disagreed since it is at a different stage of development and does not need a general framework at the time. The fifth company did not answer this question and gave no reason.

The final validation criteria is timeliness, which refers to the fact that the integration of sustainability is still a relevant problem. All of the companies, except one, which has not yet considered the integration of sustainability, stated that this research covers a problem that is still relevant to them.

The validation showed that the framework is viewed positively by the companies that were questioned. According to them the framework is very comprehensible, and it structures the problem of the integration of sustainability and thus reduces the complexity of this issue.

In this chapter a comprehensive discussion of the validation of the framework, developed in chapter 5, is presented. In essence, the validation shows to what extent the framework for the integration of corporate sustainability into BPM meets the set of requirements, defined in chapter 5.

These insights lead to the revision of the framework, which is subject of the next chapter.

## **7 Sustainability Integration Framework 2.0**

Based on the validation results, further amendments to the framework were made and the new version will be identified as “Sustainability Integration Framework 2.0” provides the answer to the main research question: “How can Corporate Sustainability be integrated into Business Process Management”. The framework is shown in Figure 28. Furthermore, it answers the sub-question: “What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management” by displaying the most relevant elements of the integration. Additionally, the answer to the second sub-question: “What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process” represents the core element of the Sustainability Integration Framework 2.0 (SIF 2.0).

Although the validation of the first framework, displayed in Figure 25 in Section 5.6, showed that the framework meets most of the defined requirements and the interviewees stated that the framework serves the purpose to support and guide the integration of corporate sustainability through business process management there is still room for improvement. The findings of the validation call for a more focussed framework rather than a completely different framework. While approving of the developed framework in general, the interviewees mentioned that details are missing. They requested that current black boxes like the benchmarking model or the corporate sustainability evaluation need to be described in more detail. Due to that requirement the Sustainability Integration Framework 2.0 concentrates on the essential element of sustainability integration. The validation also showed that the integration of sustainability should be designed as a process, which has been implemented in the Framework 2.0. This also tries to take the criticism into account that an application of the

framework still needs to be done. Furthermore, according to the results of the validation, the corporate strategy and the strategy for sustainability are in alignment. The newly developed Sustainability Integration Framework 2.0 can be seen in Figure 28, followed by a detailed description.

The Sustainability Integration Framework 2.0 is made up of three different elements that are connected to each other. These parts are the “Corporate Strategy”, “Input”, and the “Sustainability Integration Process”.

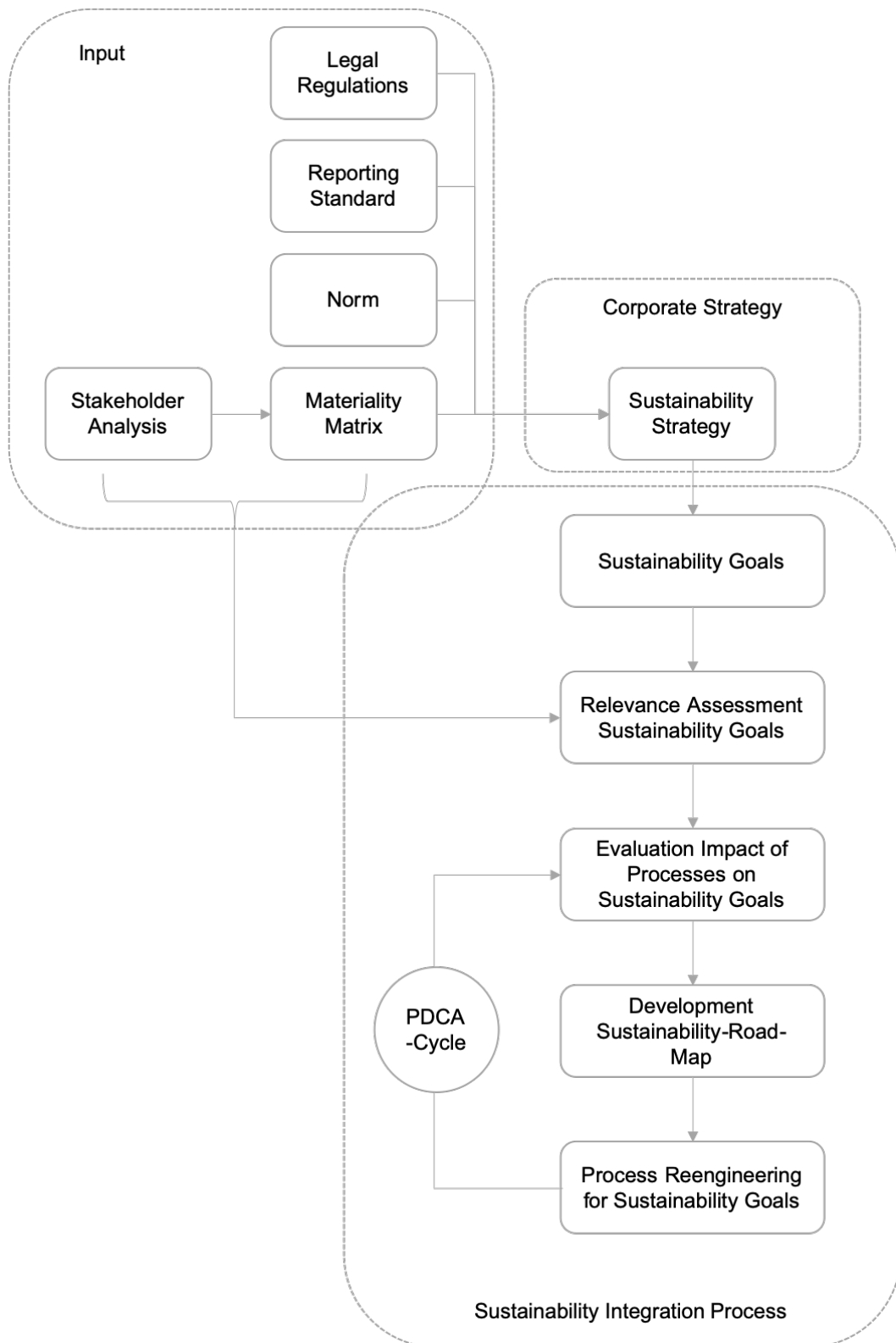


Figure 28 Sustainability Integration Framework 2.0

The framework will be described from the top left to the bottom right, starting with the “Input”. In contrast to the first version of the framework the inputs are separated from the corporate strategy. Further the business processes are no longer seen as an input. The corporate strategy is now a separate part of the framework and the business processes are part of the “Sustainability Integration Process”. Within this framework the inputs are defined as relevant elements that need to be considered for the definition of the sustainability strategy. In addition to the first framework norms are defined as an input factor, since the analysis interviews showed the importance of standards for the companies. Additionally, the input of the stakeholder analysis is supplemented by a materiality matrix, an explanation can be found in Section 2.1.2. The stakeholder analysis was emphasized several times in the validation interviews as well as the use of a materiality matrix, for this reason this aspect is integrated into the Framework 2.0.

The next part of the framework is the “Corporate Strategy”. The corporate strategy itself is out of scope of this thesis but the connection with the sustainability strategy is important. As the analysis of the interviews showed the sustainability strategy needs to be part of the corporate strategy, in order to define sustainability as an integral part of the company. To emphasize the importance of this element it is defined as one part of the Framework 2.0. The framework shows that the sustainability strategy is part of the corporate strategy and that the inputs, on the left side, are part of the definition of the sustainability strategy. The process of defining the sustainability strategy under consideration of the different input factors should be done on a regular basis. The analysis of the gathered data emphasized that sustainability is a fast-evolving topic and that this speed is a relevant aspect when it comes to the integration of sustainability into the corporation.

The core element of the Framework 2.0 is the “Sustainability Integration Process”. In the first framework this process is a sub-process of the framework. At first the sustainability goals need to be derived from the sustainability strategy. This step needs to be in line with the corporate strategy at all times. Evidently tensions between the economic goals on the one side and social and ecological on the other side are going to arise. These tensions need to be accepted and embraced, without putting too much emphasis on the economic bottom line (Hahn et al., 2014, Elkington, 2018). Subsequently a relevance assessment of the aforementioned sustainability goals needs to be undertaken. This is especially important to meet the tensions that might have arisen during the definition of the sustainability goals. When performing the relevance assessment all of the input factors, mentioned above, have to be taken into account. Special emphasis is to be put on the stakeholder analysis as well as the resulting materiality matrix, which itself provides a prioritisation of the stakeholder needs. A detailed approach for the relevance assessment should be subject to further research.

The three following steps are to be performed as a PDCA-cycle. Primarily an evaluation of the impact of the existing processes, ideally representing the entire corporate activities, on the sustainability goals has to be performed. Hand in hand with the development of a sustainability road map this evaluation represents the “Plan” part in of the PDCA-cycle. Concerning the sustainability road map the data analysis showed that it is especially important to formulate precise actions including responsibilities and deadlines. Another key finding of the analysis was the necessity of an adequate monitoring of the resulting road map. In the context of the monitoring, special emphasis lies on KPIs according to the interviews. However, the development of KPIs is specific to each company and thus lies out of scope of this thesis. The “Do” part of the PDCA-cycle is represented by the



“Process Reengineering for Sustainability Goals”. The necessary information on process reengineering can be found in Section 2.2.3. The data analysis did not provide any detail as to how the “Check” part is to be performed. However, the importance of this step was pointed out by several companies both in the interviews and the validation. As mentioned above a more detailed research regarding the development of KPIs is necessary in the future. The “Act” part is going to be another reengineering of the processes, which respect to the results of the monitoring and is thus closing the PDCA-cycle.

The first framework, presented in Section 5.6, gives an overview of the integration of corporate sustainability through BPM. The “Sustainability Integration Framework 2.0” was created to provide a more precise approach. It represents the essential contribution to knowledge of this thesis by including the key findings gathered from both the data analysis and the validation of the primary framework.

In the following chapter this thesis is going to be discussed as a whole with regard to the current state of research.

## 8 Discussion

This thesis started out with a comprehensive literature review to identify a research gap regarding the integration of sustainability. From this the following research questions resulted:

*Main research questions:*

*1. How can Corporate Sustainability be integrated into Business Process Management?*

*1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?*

*1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?*

*Sub research questions:*

*2. How do companies already integrate Corporate Sustainability?*

*2.1 What lessons have they already learned from the integration process?*

*2.2 What are the main difficulties and factors of success?*

To answer the research questions that derived from an extensive review of the current literature, 21 interviews with representatives from 15 different companies were held, using a semi-structured interview technique with open questions that were formulated in a questionnaire. These interviews were transcribed and a thematic analysis, using coding, was carried out. According to the literature, this provides the most accurate results when analysing qualitative data (Joffe and Yardley, 2003, Thomas and Harden, 2008, Creswell, 2013, Braun and Clarke, 2006, Boyatzis, 1998). The list of codes that was gained from this analysis can be found in Section 5.1. This represents one of the main findings of this research.

In a second step the transcripts were scanned, and the responses were matched to each of the thirteen questions in the questionnaire to identify the main topics and issues, as well as differences and similarities between companies. In addition to the coding this serves as a more in-depth analysis of the interviews.

All of the quality criteria described by Lincoln and Guba (1985), credibility, transferability, dependability, and confirmability, have been applied in this work.

Consulting several informants from multiple companies represents a major strength of this thesis. To improve the quality of the data gathered the research strategy of triangulation was applied (Jick, 1979). Additionally, member checking, which has been described by Creswell (2013) and Padgett (1998), to improve the validity of this research, has been used by sending the transcripts of interviews to each interviewee and validating the developed framework. The methodological approach has been selected in a step-by-step process which is described in detail in Chapter 4. Through these activities the quality criterion of 'credibility' has been met.

By gathering a comprehensive set of requirements, for an approach to integrate sustainability through the interviews and the literature review the quality criterion of 'transferability' has been fulfilled. This is due to the fact that these requirements can be used by other researchers to develop different approaches.

Further to ensure the quality criterion of 'dependability' all steps of the research process are documented holistically.

The quality criterion of 'confirmability' aims to keep subjectivity out of the research process (Lincoln & Guba, 1985). This is the most difficult to meet within qualitative research. Especially within a PhD thesis it is not possible to conduct the data analysis in cooperation with a group of researchers and to reduce the influence

of the subjective point of view of the researcher. Nevertheless, the whole research process is described in detail to disclose any subjective influence. Furthermore, the researcher tried to keep her subjective point of view aside during the research process.

According to the data analysis, companies still struggle with the integration of sustainability and the improvement of their sustainability performance. This is confirmed by current literature such as Elkington (2018), Frecè and Harder (2018), and Hahn et al. (2014) who pointed out that most of the time companies base their decisions on financial guiding principles rather than including social and ecological aspects. A survey conducted by Kiron et al. (2012) found that among others, companies are missing sufficient data or information to implement initiatives.

In line with the general struggle with the integration of sustainability, companies are especially lacking a link between their corporate strategy and a strategy for sustainability, according to the gathered data for this research. This is backed up by the findings of Loepp and Betz (2015) and Kiron et al. (2015) who reported competing priorities within companies, who are mostly leaning towards the economic bottom line. This point was also picked up by Elkington (2018) in his article in the Harvard Business Review. Practitioners confirmed these finding in the interviews that were conducted for this thesis. Conclusively a gap concerning the integration of sustainability could be identified through the literature review and the analysed interviews.

In their work, Baumgartner and Rauter (2017) added to this by stating that tools to identify and attain goals that contribute significantly to sustainable development are missing. Further Baumgartner (2014) claimed that a holistic and integrated view on corporate sustainability is still lacking, even though

instruments, tools and frameworks to support management of corporate sustainability exist. Witjes et al. (2018) added to that by stating that a tool that supports the overall integration of corporate sustainability has not been developed so far. Thus, by reviewing the literature the need for a holistic framework for the integration of sustainability was identified.

In the analysis of the interviews, this gap was confirmed by the practitioners and was further specified. A central requirement of the companies that were interviewed for this research was the support of the integration of sustainability into the processes. Furthermore, it could be shown that no sufficient integration on the operational level has been achieved thus far. Even though most companies do see a connection between corporate sustainability and BPM they do not use existing processes and BPM to the same extent that they are used for other strategy objectives. On the contrary they try to integrate sustainability through different singular projects that are not connected to the business processes. In summary certain strategies to integrate sustainability into business processes exist, but they lack a definite structure. Kiron et al. (2012) named the integration into the business processes as a critical factor for the longevity of a company.

Fistis et al. (2014) and Cleven et al. (2012) pointed out that business process management can be used as a tool for the integration of corporate sustainability into the operational level of a company. Eccles et al. (2012) and Lubin and Esty (2010) pointed to the usefulness of integrating corporate sustainability on the operational level. Specifically the integration into the BPM and its parts has been widely recommended (Baumgartner and Rauter, 2017, Engert et al., 2016, Oertwig et al., 2017, Rozman et al., 2015).

Conclusively, both the information from the literature as well as from the interviewed companies describe the need for a holistic framework that attempts the integration of sustainability into business process management. This has not been published in the literature before. Especially the combination of theory and practice in this research field represents a novel contribution to knowledge.

The Sustainability Integration Framework 2.0 closes this gap, by incorporating the gathered information into a tool that provides the relationships and sequence of activities, the links between activities, and details of the conduct of various activities in the detailed flowcharts.

Even though a multitude of tools for the integration of sustainability already exists, none of them has yet included all necessary aspects. There are several tools, which have been described in this thesis, that try to facilitate the integration of sustainability, but are limited to specific areas. Except for two of them, they are not considering the integration into BPM. The ISO 14000 can only be applied on a strategic level. Further the ISO 14000 is not an integration approach. It is a standard that is used to evaluate the implementation of sustainability into the corporation. The Sustainability Reporting Guidelines are limited to communication and reporting of sustainability. They define a standard for a sustainability report. The EFQM Framework for Sustainability only allows companies to identify the areas in which sustainability can be integrated. However, it does not provide a clear guideline for companies how to implement sustainability. It remains too vague in its description and does not provide the framework that would be needed for a holistic integration. In addition, it is not evident on what data this work is based on. Further evaluation of the existing tools can be found in Section 2.1.5.4.

In contrast to the Sustainability Integration Framework of this thesis, all of the presented tools or frameworks are not equally based on theoretic findings and insights from practitioners. The Sustainability Integration Process has been included in the SIF 2.0. It describes specific steps that have to be taken by companies to integrate sustainability into their corporation. Thus, it is a much more specific guideline than the tools that already exist. However, it also includes the necessary strategic element by showing the link between the Sustainability Integration Process and the corporate strategy.

Two frameworks have been described in current literature that attempt the integration of corporate sustainability into business process management. However, both of them are missing key elements. The Green Business Process Management by Recker et al. (2012) is an extended business process management notation which has been supplemented by a measuring tool to measure carbon footprint of a business process. While identifying certain processes with a negative impact on the CO<sub>2</sub> emission, it does not provide actions to improve that step that has been linked to a negative impact on the environment. Apart from the fact that it remains a notation, it only focusses on the environmental dimension of sustainability and thus cannot be described as a holistic approach for the integration of sustainability. It has further not been designed to improve the sustainability performance of a company.

The second approach to the integration of corporate sustainability into BPM is the Integration into the Business Process Management System by Rozman et al. (2015). This framework however is not exhaustive. It only describes a process architecture that includes key process areas already considering sustainability. On the one hand, it has been built on one fictitious model company and the process architecture is too detailed in its description to make a generalisation

possible. On the other hand, it is much too vague, even though it includes all levels of BPM. Despite its name, the Integration into the Business Process Management System does not provide advice about how an integration of sustainability into BPM can be performed in general. In addition, no validation of this framework could be found.

The framework developed in this thesis is not simply a notation like the Green BPM. Furthermore, it takes all of the bottom lines into account, not just the ecological bottom line. In contrast to the framework by Rozman, this framework is based on an extensive literature review and data gathered from actual practitioners. Thus, it is much closer to real-life situations than the BPM System by Rozman and other existing tools.

The Sustainability Integration Framework was initially developed based on the Corporate Sustainability Model by Epstein and Buhovac (2014). This was done to increase the understandability as well as the quality and completeness of the framework. However, Epstein and Buhovac's model does not provide a clear guidance for the integration into BPM. Also, it only meets two of the requirements for a novel approach that are defined in this thesis. Its focus lies mostly on the economic bottom line and does not consider the other two bottom lines to a sufficient degree. That is why only the structure of this existing framework was used for the development of the Sustainability Integration Framework.

From the analysis of the interviews, specific requirements for a novel framework were extracted. These were amalgamated with findings from current literature. A total of eleven requirements, which can be found in Table 17 in Section 5.4, have been described in detail. In the literature, requirements for the integration of sustainability have been described before. However the extent and detail of the requirements, presented in this thesis, has never been published before.



Vermeulen and Witjes (2016), for example identified the need for integration approach from an inclusive systematic perspective. Others stressed the need for monitoring the performance or reporting on the progress (AccountAbility, 2008, Baumgartner, 2014, Eccles et al., 2012) but they did not derive a complete specification.

The requirements are of course influenced by the identified challenges and success factors for the integration of sustainability. This detailed set of both challenges and success factors for the integration of sustainability represents a contribution to knowledge in itself. A list of this extent has not been published until now, especially not with data gathered from practitioners. Baumgartner (2014) and Eccles et al. (2012) called for the use of monitoring, including KPIs and audits. Bonini and Görner (2011), as well as Vermeulen and Witjes (2016) required using an approach tailored to the individual characteristics of a company.

This thesis provides both an extensive and detailed set of requirements for the integration of sustainability into business process management and presents a holistic framework to carry out the integration at the same time. This has never been done before and represents a major contribution to existing knowledge in this research field.

The Framework for Sustainability Integration through Business Process Management represents the first framework that was developed based on the literature review and the requirements identified through the analysis of the interviews. By performing a validation in cooperation with practitioners the quality of the framework was confirmed, and possible improvements could be identified. This led to the development of the refined SIF 2.0.

At the start of the Sustainability Integration Process the sustainability goals have to be defined. The sustainability goals, emerging from coding the interviews are similar to the goals that have been described in existing literature, by the Global Reporting Initiative (2015) and the United Nations in their Sustainability Development Goals in 2015 (UN General Assembly).

In the SIF 2.0 the sustainability goals are derived from the sustainability strategy, which is an integral part of the corporate strategy. To define the sustainability strategy, most of the companies start with a definition for sustainability. In most companies the strategy for sustainability is often defined separately from the overall corporate strategy. The coding of the interviews showed that a successful strategy for the integration of sustainability needs to be derived from the corporate strategy, therefore it has to be an integral part of the company. These findings confirm current literature such as Vermeulen and Witjes (2016) and Witjes et al. (2018) who claim that an integration approach should always be built from an inclusive systematic perspective. The interviews showed that there is a need for a common understanding of what is meant by sustainability and its meaning for the individual company.

Frecè and Harder (2018) stated that companies define sustainability based on the Brundtland report most of the time. In contrast to that, the data analysis for this thesis showed that the Triple Bottom Line by Elkington as well as the Sustainability Development Goals of the United Nations were used more frequently by companies than the Brundtland Report to define sustainability for their corporation. The literature review by Swarnapali (2017) supports these findings. However, companies also reported in the interviews that these definitions have not proven to be sufficient enough to translate sustainability to the operational level. To meet this requirement a new definition for sustainability

was developed for this thesis, which can be found in Section 2.1.4. It has been embedded into the framework, since it includes stakeholder interests and thus creates a link to an external dimension. In addition, the processes have to be weighed against sustainability goals and thus the reduction of a negative impact of these is put into focus. However, balancing the different bottom lines is not included in the definition, because a relevance assessment has to be carried out by each company individually.

Beside the definition of sustainability, certain input factors have to be taken into account to define a sustainability strategy, as the SIF 2.0 shows.

From the interviews, several drivers could be identified through coding. These were divided into generally internal and external drivers, as well as specific economic drivers, since these appeared to play an especially important role. This comprehensive presentation of drivers for integrating sustainability represents a new contribution to existing literature. Although certain drivers have already been described in literature (Bonini and Görner (2011), Robinson et al. (2006), Epstein and Roy (2003), Lubin and Esty (2010), Savitz (2006), Loepp and Betz (2015) and Epstein and Roy (2001)), this thesis contributes to knowledge by providing a list of drivers which has been derived from insights of practitioners as well as existing literature. In addition, the data analysis demonstrated that companies often have difficulties with coordinating the drivers for the integration of sustainability.

The Sustainability Integration Framework 2.0 provides companies with a clear guideline for the integration of sustainability into business process management. It describes each step that needs to be taken for the integration. All relevant input factors that have been gathered in this research are taken into account. The framework helps managers to better understand and structure the integration of sustainability. It shows how sustainability and BPM are connected from the practitioners' points of view. The current literature, which tries to display the complexity of corporate sustainability and its integration, is mostly based on theoretical findings (Lozano, 2015, Schaltegger et al., 2013). In the literature review this was confirmed, as only 23 percent of the articles concerning corporate sustainability were based on empirical research. By basing a main part of the research on the experience of employees who work on integrating sustainability into their companies on a daily basis and providing a validation of the initial framework, the impact and quality of this work is strengthened immensely. In addition, this has never been done in existing literature to this extent before.

By applying the SIF 2.0 the processes can be improved with regards to sustainability. Furthermore, a clear link between the corporate strategy and the sustainability strategy is pointed out and thus makes sustainability an integral part. As requested by practitioners, it includes an iterative PDCA cycle for continuous improvement. The SIF 2.0 provides a holistic approach that has been demanded by both researchers and practitioners. Never before has a framework been described to this extent and detail.

The developed framework is partly connected to stakeholder theory, because the input factors mainly originate externally, and special emphasis has been placed on the stakeholder analysis. It is also partly linked to management theory since it helps managers with the understanding as well as the management of the integration of sustainability. Vermeulen and Witjes (2016) have previously described the connection between the implementation of sustainability and management theory. As managers have thus far failed to consider strategic management in connection with corporate sustainability and have been in need of an approach (Engert et al., 2016), this narrows a gap within management theory. The connection to more than just a single theory has been recognized by Linnenluecke et al. (2009) previously.

Like any research, this thesis is subject to certain limitations. Due to the limited time frame it was not possible to perform iterative research cycles. Further, testing of the framework in real-life situations could not be performed. To meet these limitations a validation of the first version of the framework was conducted, which led to the development of the refined Sustainability Integration Framework 2.0. Future research should try to test and develop this framework further. Ideally this would be done by using an action research approach. Another possibility would be performing case studies using the framework.

Future research areas should further include the development of a relevance assessment for sustainability goals as well as the development of adequate monitoring tools and KPIs. Additionally, a maturity model for corporate sustainability should be the subject of future research.

Another limitation of this thesis is the fairly small sample size that was used for this research, which makes a generalization of the results difficult. However, more companies were not included for questioning as no more additional information

was expected. Gummesson (2003) described this as a valid approach to determine a sample size in qualitative research.

Another limitation regarding the sample is, that only large German companies were selected. Future research should include a wider array of companies from a broader spectrum to allow a definite generalization.

Conclusively, the identified limitations lead to the following main research questions for future research:

*Is the Sustainability Integration Framework 2.0 able to support the integration of Corporate Sustainability through Business Process Management?*

*What could a monitoring system for Corporate Sustainability look like?*

*How can KPIs for Corporate Sustainability be defined?*

*What could a maturity model for Corporate Sustainability look like?*

However, the main contribution to knowledge of this thesis is the Sustainability Integration Framework 2.0, since it narrows the gap between BPM and corporate sustainability. Further, this research contributes a set of success factors and difficulties regarding the integration. In addition, it presents a set of requirements a possible method for the integration of sustainability should include. It narrows the research gap between theory and practice. This thesis provides a novel approach for companies to integrate sustainability into business processes.

## 9 Conclusion

This thesis identified a gap between corporate sustainability and the integration through business process management. Thus, the main research question: “How can Corporate Sustainability be integrated into Business Process Management?” was examined.

Therefore, a thorough structured literature review on both corporate sustainability and business process management, was conducted. Based on this literature review the research questions were developed and a suitable research methodology was selected. The research was conducted using a qualitative approach, which included semi-structured interviews. For the interviews a questionnaire with open questions was created. The gathered data was analysed using two different approaches. At first the data was coded and major themes were extracted. These are sustainability goals, sustainability integration, and method requirements.

The second part of the analysis aimed to gain deeper knowledge about companies’ actual approach towards sustainability, the success factors and difficulties they identified, as well as the requirements they have toward a method for the integration of sustainability through business process management. However, it has to be said, that both parts of the analysis provided matching results and thus the second part can be seen as an addition to the coding.

The results of the data analysis as well as the results of the literature review were used to develop a framework that answers the main research question of this thesis. In a further methodological step this framework was validated. Therefore, participants of the first round of interviews were asked, as well as employees from companies that had not been interviewed before.

Finally, the results of the validation led to an improved framework, the “Sustainability Integration Framework 2.0”.

This framework represents the major contribution to knowledge of this thesis, next to the set of success factors and difficulties regarding the integration of sustainability. Furthermore, the list of requirements concerning a method for the integration of sustainability has not been described in the literature in this detail before.

Conclusively the research question where answered as follows:

*1. How can Corporate Sustainability be integrated into Business Process Management?*

By applying the Sustainability Integration Framework 2.0, which includes a detailed guideline for the integration of corporate sustainability into business process management.

*1.1 What are the main aspects that need to be considered when integrating Corporate Sustainability into Business Process Management?*

Several input factors and the corporate strategy, as described in the SIF 2.0, have to be integrated into the sustainability strategy. Furthermore, the sustainability goals have to be derived from the sustainability strategy. In another step the business processes have to be adapted to the developed sustainability strategy. This step has to be performed in an iterative fashion to be able to react to changes happing in the process. Further aspects are mentioned in the set of challenges and success factors for the integration of corporate sustainability into BPM.



### *1.2 What would constitute a suitable process for the integration of sustainability into businesses, a Sustainability Integration Process?*

This process was defined within the SIF 2.0, based on the results of the conducted literature review and the results of the data analysis. It has been validated by practitioners, to ensure that it serves the defined purpose.

### *2. How do companies already integrate Corporate Sustainability?*

As of now, no systematic approach for the integration of corporate sustainability has been established. Companies integrate sustainability through different single projects that are not connected to the business processes. Most companies already use the PDCA-cycle.

#### *2.1 What lessons have they already learned from the integration process?*

The lessons are represented by the codes that were extracted from the thematic analysis of the interviews. Major lessons include that corporate sustainability needs to be an integral part of the company to be successful. In addition, sustainability has to be connected to the business processes. The integration process has to be performed iteratively. Finally, the commitment of the top-level management is crucial.

#### *2.2 What are the main difficulties and factors of success?*

The main difficulties and success factor are named explicitly in the coding in Section 5.1.

This thesis was able to narrow the gap between corporate sustainability and business process management. A direct link between a thorough literature review and data collected from interviews with practitioners has not been reported in current literature on corporate sustainability before. Thus, it narrows the gap between theory and practice in this area. Through the validation of the initial

framework the refined version facilitates a use in practical scenarios. Moreover, researchers are now able to use both the extracted set of requirements for a method to integrate sustainability and the set of possible success factors and difficulties. In addition, the research approach of this thesis has been documented in great detail to ensure a high degree of reproducibility and transparency.

The SIF 2.0 provides a clear guideline for the integration of sustainability. It describes each step that has to be taken. Additionally, all relevant input factors are taken into account. Further, it helps managers to understand and structure the integration of sustainability into BPM. By applying the SIF 2.0 the processes can be improved regarding sustainability. This framework provides a clear link between the corporate strategy and the sustainability strategy, which makes sustainability an integral part of the company. Furthermore, it contains an iterative cycle to adapt to the ever changing sustainability requirements.

Conclusively it provides the demanded holistic approach to the integration of sustainability into business process management. All of the above named characteristics represent a novel contribution to existing knowledge.

Ensuring sustainability is the most important task for operations managers to fulfil and hopefully this work can go a small way to making a positive difference in this important work.

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## Appendices



## Appendix A. Literature Review Sources

### Literature on Corporate Sustainability:

Author	Date	Title	Type	Journal	Method	Theme	Theory
Account-Ability	2008	<i>AA1000 Accountability Principles Standard 2008</i>	Web Page		Conceptual	Corporate Sustainability Development	
Amini, M., Bienstock, C. C. & Narcum, J. A.	2018	<i>Status of corporate sustainability: a content analysis of Fortune 500 companies</i>	Journal	Business Strategy and the Environment	Empirical Research	Corporate Sustainability Definition	Organisational Theory
Bansal, P.	2005	<i>Evolving Sustainably: A Longitudinal Study of Corporate Sustainable Development</i>	Journal	Strategic Management Journal	Empirical Research	Corporate Sustainability Definition	Institutional Theory Resource-based Theory
Baumgartner, R.J.	2009	<i>Organizational culture and leadership: Preconditions for the development of a sustainable corporation</i>	Journal	Sustainable Development	Empirical Research	Corporate Sustainability Development	Organisational Theory
Baumgartner, R.J.	2014	<i>Managing Corporate Sustainability and CSR: A Conceptual Framework Combining Values, Strategies and Instruments Contributing to Sustainable Development</i>	Journal	Corporate Social Responsibility and Environmental Management	Conceptual	Corporate Sustainability Development Connection BPM	Management Theory
Baumgartner, R.J. & Ebner, D.	2010	<i>Corporate sustainability strategies: Sustainability profiles and maturity levels</i>	Journal	Sustainable Development	Conceptual	Corporate Sustainability Definition	
Baumgartner, R.J. & Rauter, R.	2017	<i>Strategic perspectives of corporate sustainability management to develop a sustainable organization</i>	Journal	Journal of Cleaner Production	Conceptual	Corporate Sustainability Barriers Connection BPM	Management Theory
Beckett, R. & Jonker, J.	2002	<i>AccountAbility 1000: A new social standard for building sustainability</i>	Journal	Managerial Auditing Journal	Conceptual	Corporate Sustainability Connection BPM Sustainability Reporting	Stakeholder Theory

Bieker, T.	2001	<i>Management unternehmerischer Nachhaltigkeit mit einer Sustainable Balanced Scorecard: Forschungsmethodische Grundlagen und erste Konzepte</i>	Book		Conceptual	Corporate Sustainability Definition	
Bonini, S. & Görner, S.	2011	<i>The business of sustainability: McKinsey Global Survey results</i>	Web Page		Empirical Research	Corporate Sustainability Reasons Development Connection BPM Integration	
Cleven, A., Winter, R., & Wortmann, F.	2012	<i>Managing Process Performance to Enable Corporate Sustainability: A Capability Maturity Model</i>	Book		Conceptual	Corporate Sustainability Integration Process Performance Management	
Deming, W.	2000	<i>Out of the Crisis</i>	Book		Conceptual	Corporate Sustainability Integration	
Dias-Sardinha, I., Reijnders, L. & Antunes, P.	2002	<i>From environmental performance evaluation to eco-efficiency and sustainability balanced scorecards</i>	Journal	Environmental Quality Management	Empirical Research	Corporate Sustainability Integration	Management Theory
Draheim, D.	2010	<i>Business process technology: A unified view on business processes, workflows and enterprise applications</i>	Book		Conceptual	Corporate Sustainability Connection BPM	
Dyllick, T. & Hockerts, K.	2002	<i>Beyond the business case for corporate sustainability</i>	Journal	Business Strategy and the Environment	Conceptual	Corporate Sustainability Definition	Stakeholder Theory
Eccles, R. G., Ioannou, I. & Serafeim, G.	2014	<i>The Impact of Corporate Sustainability on Organizational Processes and Performance</i>	Journal	Management Science	Empirical Research	Corporate Sustainability Reasons Sustainability Performance	Stakeholder Theory Institutional Theory
Eccles, R. G., Miller Perkins, K. & Serafeim, G.	2012	<i>How to Become a Sustainable Company</i>	Journal	MIT Sloan Management Review	Empirical Research	Corporate Sustainability Development Connection BPM Integration	
EFQM	2015	<i>EFQM Framework for Sustainability</i>	Web Page		Conceptual	Corporate Sustainability Integration Connection BPM	
Elkington, J.	1999	<i>Cannibals with forks: The triple bottom line of</i>	Book		Conceptual	Corporate Sustainability Definition Integration	

		21st century business					
Elkington, J.	2018	25 Years Ago I Coined the Phrase "Triple Bottom Line." Here's Why It's Time to Rethink It.	Journal	Harvard Business Review	Journalistic	Corporate Sustainability Definition Barriers	
Endres, A.	2015	Klimagipfel Paris: Die Zeitwende von Le Bourget	Article	Die Zeit	Journalistic	Corporate Sustainability Development	
Engert, S., Rauter, R. & Baumgartner, R.	2016	Exploring the integration of corporate sustainability into strategic management: a literature review	Journal	Journal of Cleaner Production	Literature Review	Corporate Sustainability Integration Connection BPM	Management Theory
Epstein, Buhovac	2014	Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts	Book		Conceptual	Corporate Sustainability Integration	
Epstein, M. J. & Roy, M.-J.	2001	Sustainability in Action: Identifying and Measuring the Key Performance Drivers	Journal	Long Range Planning	Conceptual	Corporate Sustainability Reasons Integration Sustainability Performance	Organisational Theory
Epstein, M. J. & Roy, M.-J.	2003	Making a Business Case for Sustainability	Journal	Journal for Corporate Citizenship	Conceptual	Corporate Sustainability Reasons Integration Sustainability Performance	Management Theory Organisational Theory
Epstein, M.J. & Wiesner, P.	2001	Using a Balanced Scorecard to Implement Sustainability	Journal	Environmental Quality Management	Conceptual	Corporate Sustainability Integration Connection BPM	Management Theory
Figge, F., Hahn, T., Schaltegger, S. & Wagner, M.	2002	The Sustainability Balanced Scorecard - linking sustainability management to business strategy	Journal	Business Strategy and the Environment	Conceptual	Corporate Sustainability Integration Connection BPM Sustainability Balanced Scorecard	Management Theory
Fistis, G., Rozman, T., Riel, A. & Messnarz, R.	2014	Leadership in Sustainability	Book		Conceptual	Corporate Sustainability Definition Integration Leadership in Sustainability Connection BPM	
Formentini, M. & Taticchi, P.	2016	Corporate sustainability approaches and governance mechanisms in sustainable	Journal	Journal of Cleaner Production	Empirical Research	Corporate Sustainability Definition Integration	Stakeholder Theory Resource-based Theory

		<i>supply chain management</i>						
Frece, J. and Harder, D.	2018	<i>Organisations beyond Brundtland: A Definition of Corporate Sustainability Based on Corporate Values</i>	Journal	Journal of Sustainable Development	Empirical Research	Corporate Sustainability Definition		
Gao, S. S. & Zhang, J. J.	2006	<i>Stakeholder engagement, social auditing and corporate sustainability</i>	Journal	Business Process Management Journal	Conceptual	Corporate Sustainability Definition Stakeholder Engagement	Stakeholder Theory	
Garcia, S., Cintra, Y., Torres, Rita de Cássia S.R. & Lima, F. G.	2016	<i>Corporate sustainability management: A proposed multi-criteria model to support balanced decision-making</i>	Journal	Journal of Cleaner Production	Conceptual	Corporate Sustainability Definition Decision Making	Stakeholder Theory	
Ghose, A., Hoesch-Klohe, K., Hinsche, L., & Le, L.-S.	2009	<i>Green Business Process Management: A Research Agenda</i>	Journal	Australasian Journal of Information Systems	Conceptual	Corporate Sustainability Connection BPM Green BPM	Management Theory	
Glatzner, L.	2001	<i>ISO 14001 in Deutschland: Erfahrungsbericht</i>	Web Page		Journalistic	Corporate Sustainability Integration		
Global Reporting Initiative	2015	<i>G4 Sustainability Reporting Guidelines: Reporting Principles and Standard Disclosures</i>	Web Page		Conceptual	Corporate Sustainability Definition Integration Connection BPM		
Hahn, T., Pinkse, J., Preuss, L. & Figge, F.	2014	<i>Tensions in Corporate Sustainability: Towards an Integrative Framework</i>	Journal	Journal of Business Ethics	Conceptual	Corporate Sustainability Definition Connection BPM	Institutional Theory	
Hammer, M.	2015	<i>What is Business Process Management</i>	Book		Conceptual	Corporate Sustainability Connection BPM		
Isaksson, R.	2006	<i>Total quality management for sustainable development: Process based system models</i>	Journal	Business Process Management Journal	Conceptual	Corporate Sustainability Definition Connection BPM	Management Theory Organisational Theory Institutional Theory	
ISO	2010	<i>Environmental management - The ISO 14000 family of International Standards</i>	Web Page		Conceptual	Corporate Sustainability Integration		

Johnson, M. & Schaltegger, S.	2016	<i>Two Decades of Sustainability Management Tools for SMEs: How Far Have We Come?</i>	Journal	Journal of Small Business Management	Literature Review	Corporate Sustainability Integration Sustainability Management in SMEs	Stakeholder Theory Social Capital Theory Institutional Theory Transaction Cost Theory
Kiron, D., Kruschwitz, N., Haanaes, K. & Streng Velken, I. von	2012	<i>Sustainability Nears a Tipping Point</i>	Journal	MIT Sloan Management Review	Empirical Research	Corporate Sustainability Barriers Reasons Connection BPM	
Kiron, D., Kruschwitz, N., Haanaes, K., Reeves, M., Fuisz-Kehrbach, S.-K. & Kell, G.	2015	<i>Joining Forces: Collaboration and Leadership for Sustainability: The growing importance of corporate collaboration and boards of directors to sustainable business</i>	Journal	MIT Sloan Management Review	Empirical Research	Corporate Sustainability Barriers Reasons Connection BPM	
Klauer, B.	1999	<i>Was ist Nachhaltigkeit und wie kann man eine nachhaltige Entwicklung erreichen?</i>	Journal	Zeitschrift für angewandte Umweltforschung	Journalistic	Corporate Sustainability Definition	
König, J. & Thema, J.	2011	<i>Nachhaltigkeit in der Entwicklungszusammenarbeit: Theoretische Konzepte, strukturelle Herausforderungen und praktische Umsetzung</i>	Book		Conceptual	Corporate Sustainability Development	
Krcal, H. C.	2003	<i>Systemtheoretischer Metaansatz für den Umgang mit Komplexität und Nachhaltigkeit</i>	Book		Conceptual	Corporate Sustainability Definition	
Kuhndt, M.	2004	<i>Sustainable Business Development</i>	Book		Conceptual	Corporate Sustainability Integration	
Kurdve, M., Shahbazi, S., Wendin, M., Bengtsson, C., & Wiktorsson, M.	2015	<i>Waste flow mapping to improve sustainability of waste management: A case study approach</i>	Journal	Journal of Cleaner Production	Empirical Research	Corporate Sustainability Waste Flow Mapping	
Loepp, F. & Betz, S.	2015	<i>Sustainability Practices in Companies: Strategies   Business Process Management   ICT</i>	Web Page		Empirical Research	Corporate Sustainability Reasons Barriers	

Lozano, R.	2015	<i>A Holistic Perspective on Corporate Sustainability Drivers</i>	Journal	Corporate Social Responsibility and Environmental Management	Empirical Research	Corporate Sustainability Drivers	Management Theory
Lozano, R.	2012	<i>Towards better embedding sustainability into companies' systems: an analysis of voluntary corporate initiatives</i>	Journal	Journal of Cleaner Production	Literature Review	Corporate Sustainability Integration	
Lubin, D. A. & Esty, D. C.	2010	<i>The Sustainability Imperative</i>	Journal	Harvard Business Review	Journalistic	Corporate Sustainability Reasons Connection BPM	
Marrewijk, M. van & Werre, M.	2003	<i>Multiple Levels of Corporate Sustainability</i>	Journal	Journal of Business Ethics	Conceptual	Corporate Sustainability Development Ambition Levels	
Marx, K.	1867	<i>Das Kapital: Kritik der politischen Ökonomie</i>	Book		Conceptual	Corporate Sustainability Definition	
Meadows, D.H., Meadow, D.L., Randers, J. & Behrens III, W.W.	1974	<i>The Limits of Growth: A Report for the Club of Rome's Project on the Predicament of Mankind</i>	Book		Conceptual	Corporate Sustainability Development	
Nguyen, D. K. & Slater, S. F.	2010	<i>Hitting the sustainability sweet spot: Having it al</i>	Journal	Journal of Business Strategy	Empirical Research	Corporate Sustainability Definition	
Oertwig, N., Galeitzke, M., Schmiege, H.-G., Kohl, H., Jochem, R., Orth, R. & Knothe, T.	2017	<i>Integration of Sustainability into the Corporate Strategy</i>	Book		Conceptual	Corporate Sustainability Definition Connection BPM	
Opresnik, D. & Taisch, M.	2015	<i>The Conceptualization of Sustainability in Operations Management</i>	Journal	Procedia CIRP	Conceptual	Corporate Sustainability Connection BPM Operations Management	Management Theory Organisational Theory
Palmer, T. B. & Flanagan, D. J.	2016	<i>The sustainable company: Looking at goals for people, planet and profits</i>	Journal	Journal of Business Strategy	Empirical Research	Corporate Sustainability Definition Goal Setting	
Pfeiffer, U.M.	2009	<i>Der Weg zu Eco-Excellence: Nachhaltigkeit durch vernetztes Denken und Handeln am Beispiel der Bahnindustrie</i>	Book		Conceptual	Corporate Sustainability Development	

Pufé, I.	2014	<i>Was ist Nachhaltigkeit? Dimensionen und Chancen</i>	Journal	Aus Politik und Zeitgeschichte: Nachhaltigkeit	Journalistic	Corporate Sustainability Definition	
Recker, J., Rosemann, M., Hjalmarsson, A. & Lind, M.	2012	<i>Modeling and Analyzing the Carbon Footprint of Business Process</i>	Book		Conceptual	Corporate Sustainability Integration Connection BPM Green BPM	
Robinson, H. S., Anumba, C. J., Carrillo, P. M. & Al-Ghassani, A. M.	2006	<i>STEPS: a knowledge management maturity roadmap for corporate sustainability</i>	Journal	Business Process Management Journal	Empirical Research	Corporate Sustainability Definition Reasons Knowledge Management	
Rozman, T., Draghici, A. & Riel, A.	2015	<i>Achieving Sustainable Development by Integrating It into the Business Process Management System</i>	Book		Conceptual	Corporate Sustainability Integration Connection BPM	
Savitz, A. W.	2006	<i>The Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social and Environmental Success - and How You Can Too</i>	Book		Conceptual	Corporate Sustainability Reasons	
Schalt-egger, S., Beckmann, M., & Hansen, E. G.	2013	<i>Trans-disciplinarity in Corporate Sustainability: Mapping the Field</i>	Journal	Business Strategy and the Environment	Conceptual	Corporate Sustainability Trans-disciplinarity	
Schmidt, G.	2012	<i>Prozeßmanagement: Modelle und Methoden</i>	Book		Conceptual	Corporate Sustainability Connection BPM	
Schneck	1994	<i>Lexikon der Betriebswirtschaft : über 2500 grundlegende und aktuelle Begriffe für Studium und Beruf</i>	Book		Conceptual	Corporate Sustainability Definition	
Simpson, D.	2018	<i>Aufpoliert</i>	Article	Die Zeit	Journalistic	Corporate Sustainability Integration	
Smith, A.	1776	<i>An Inquiry into the Nature and Cases of the Wealth of Nations</i>	Book		Conceptual	Corporate Sustainability Definition	
Sroufe, R.	2017	<i>Integration and organizational change towards sustainability</i>	Journal	Journal of Cleaner Production	Empirical Research	Corporate Sustainability Connection BPM	Institutional Theory

Steger, U., Achterberg, W., Blok, K., Bode, H., Frenz, W., Gather, C., Hanekamp, G., Imboden, D., Jahnke, M., Kost, M., Kurz, R., Nutzinger, H. G. & Ziesemer, T.	2002	<i>Nachhaltige Entwicklung und Innovation im Energiebereich</i>	Book		Conceptual	Corporate Sustainability Development	
Steinmann, H.	1998	<i>Umwelt und Wirtschaftsethik</i>	Book		Conceptual	Corporate Sustainability Development	
Svensson, G., Høgevold, N., Ferro, C., Varela, J. C. S., Padin, C. & Wagner, B.	2016	<i>A Triple Bottom Line Dominant Logic for Business Sustainability: Framework and Empirical Findings</i>	Journal	Journal of Business-to- Business Marketing	Empirical Research	Corporate Sustainability Definition	Stakeholder Theory Resource- based Theory
Swarnapali, N.	2017	<i>Corporate Sustainability: A Literature Review</i>	Journal	Journal for Accounting Researchers and Educators	Literature Review	Corporate Sustainability Definition Theories	Institutional Theory Agency Theory Legitimacy Theory Signaling Theory Stakeholder Theory Resource- based Theory
TUV SUD Manageme nt Service GmbH	2008	<i>ISO 14001:2004: Spezifikation für Umweltmanagem entsysteme - Grundlage für Aufbau und Zertifizierung</i>	Web Page		Not applicable	Corporate Sustainability Integration	
TUV SUD Manageme nt Service GmbH	2014	<i>Zertifizierung nach DIN ISO 14001</i>	Web Page		Not applicable	Corporate Sustainability Integration Connection BPM	
United Nations	2015	<i>Paris Agreement</i>	Web Page		Not applicable	Corporate Sustainability Development	
United Nations Global Compact	2014	<i>Guide to Corporate Sustainability: Shaping a Sustainable Future</i>	Web Page		Not applicable	Corporate Sustainability Development Integration	
United Nations Division for Sustainable Develop- ment	1992	<i>Agenda 21</i>	Web Page		Not applicable	Corporate Sustainability Development	



Vaduva, S., Fotea, I. S. & Thomas, A. R.	2017	<i>Business ethics and leadership from an Eastern European, transdisciplinary context: The 2014 Griffiths School of Management Annual Conference on Business, Entrepreneurship and Ethics</i>	Book		Conceptual	Corporate Sustainability Development	
Vermeulen, W.J.V. & Witjes, S.	2016	<i>On addressing the dual and embedded nature of business and the route towards corporate sustainability</i>	Journal	Journal of Cleaner Production	Literature Review	Corporate Sustainability Definition Development Integration	Institutional Theory
vom Brocke, J., Seidel, S. & Recker, J.	2012	<i>Green business process management: Towards the sustainable enterprise</i>	Book		Conceptual	Corporate Sustainability	
WCED	1987	<i>Our Common Future</i>	Web Page		Not applicable	Corporate Sustainability Development	Organisational Theory
Weiland, S.	2007	<i>Politik der Ideen: Nachhaltige Entwicklung in Deutschland, Großbritannien und den USA</i>	Book		Conceptual	Corporate Sustainability Development	
Wilkens, S.	2008	<i>Effizientes Nachhaltigkeitsmanagement</i>	Book		Conceptual	Corporate Sustainability Development	
Wilson, M.	2003	<i>Corporate Sustainability: What is it and where does it come from?</i>	Journal	Ivey Business Journal	Conceptual	Corporate Sustainability Definition	Stakeholder Theory
Witjes, S., Cramer, J.M. & Vermeulen, W.J.V.	2018	<i>On corporate sustainability integration and the support tools</i>	Journal	World Review of Entrepreneurship, Management and Sustainable Development	Literature Review	Corporate Sustainability Development Integration Connection BPM Reporting	Organisational Theory

## Literature on Business Process Management:

Author	Date	Title	Type	Journal	Theme
Aagesen, G. & Krogstie, J.	2015	<i>BPMN 2.0 for Modeling Business Processes</i>	Book Section		BPM Methods
Adesola, S. & Baines, T.	2005	<i>Developing and evaluating a methodology for business process improvement</i>	Journal	Business Process Management Journal	BPM Methods
Aguilar-Saven, R.	2004	<i>Business process modelling: Review and framework</i>	Journal	International Journal of Production Economics	BPM Methods
Alfaro, A., Ortiz, A. & Poler, R.	2007	<i>Performance measurement system for business processes</i>	Journal	Production Planning & Control	BPM
Armistead, C.	1996	<i>Principles of business process management</i>	Journal	Managing Service Quality: An International Journal	BPM
Becker, J., Günther, O., Karl, W., Lienhart, R., Mathas, C. Winkelmann, A. & Zeppenfeld, K.	2009	<i>Geschäftsprozessmanagement</i>	Book		BPM
Beretta, S.	2002	<i>Unleashing the integration potential of ERP systems</i>	Journal	Business Process Management Journal	BPM
Braganza, A. & Lambert, R.	2000	<i>Strategic integration: Developing a Process-Governance Framework</i>	Journal	Knowledge and Process Management	BPM Governance
Burlton, R.	2015	<i>Delivering Business Strategy Through Process Management</i>	Book Section		BPM Strategic Alignment
Davenport, T.	1993	<i>Process innovation: Reengineering work through information technology</i>	Book		BPM
Deming, W.	2000	<i>Out of the Crisis</i>	Book		BPM
Draheim, D.	2010	<i>Business process technology: A unified view on business processes, workflows and enterprise applications</i>	Book		BPM
Dumas, M., La Rosa, M., Mendling, J. & Reijers, H.	2013	<i>Fundamentals of Business Process Management</i>	Book		BPM Methods
Elzinga, D., Horak, T., C. & Bruner, C.	1995	<i>Business process management: Survey and methodology</i>	Journal	IEEE Transactions on Engineering Management	BPM
European Association of Business Process Management	2014	<i>BPM CBOK® - Business Process Management BPM Common Body of Knowledge, Version 3.0: Leitfaden für das Prozessmanagement</i>	Book		BPM
Frolick, M. & Ariyachandra, T.	2006	<i>Business Performance Management: One Truth</i>	Journal	Information Systems Management	BPM Methods
Gulledge, T. & Sommer, R.	2002	<i>Business process management: Public sector implications</i>	Journal	Business Process Management Journal	BPM
Hammer, M.	2015	<i>What is Business Process Management?</i>	Book Section		BPM Strategic Alignment Methods

					Information Technology
Hammer, M. & Champy, J.	1993	<i>Reengineering the corporation: A manifesto for business revolution</i>	Book		BPM
Harmon, P.	2015	<i>The Scope and Evolution of Business Process Management</i>	Book Section		BPM
Harmon, P. & Wolf, C.	2016	<i>The State of Business Process Management 2016</i>	Web Page		BPM
Harrington, H. & Harrington, J.	1995	<i>Total improvement management: The next generation in performance improvement</i>	Book		BPM Methods
Helbig, R.	2003	<i>Prozessorientierte Unternehmensführung: Eine Konzeption mit Konsequenzen für Unternehmen und Branchen dargestellt an Beispielen aus Dienstleistung und Handel</i>	Book		BPM
Hung, R.	2006	<i>Business process management as competitive advantage: A review and empirical study</i>	Journal	Total Quality Management & Business Excellence	BPM Strategic Alignment People
IBM	2014	<i>BPM Guide - Getting Started with the Basics</i>	Web Page		BPM
Kaplan, R. & Norton, D.	2004	<i>Strategy maps: Der Weg von immateriellen Werten zum materiellen Erfolg</i>	Book		BPM Strategic Alignment
Kaplan, R. & Norton, D.	1996	<i>The balanced scorecard: Translating strategy into action</i>	Book		BPM Strategic Alignment
Kohlbacher, M.	2010	<i>The effects of process orientation: a literature review</i>	Journal	Business Process Management Journal	BPM
Lee, R. & Dale, B.	1998	<i>Business process management: A review and evaluation</i>	Journal	Business Process Management Journal	BPM
Llewellyn, N. & Armistead, C.	2000	<i>Business process management</i>	Journal	International Journal of Service Industry Management	BPM People
Markus, M. & Jacobson, D.	2015	<i>The Governance of Business Processes</i>	Book		BPM Governance
Neubauer, T.	2009	<i>An empirical study about the status of business process management</i>	Journal	Business Process Management Journal	BPM
Object Management Group	2014	<i>Business Motivation Model: Version 1.2</i>	Web Page		BPM Strategic Alignment
Object Management Group	2011	<i>Business Process Model and Notation (BPMN): Version 2.0</i>	Web Page		BPM Strategic Alignment
Palmberg, K. & Mi Dahlgaard-Park, S.	2009	<i>Exploring process management: are there any widespread models and definitions?</i>	Journal	The TQM Journal	BPM
Pritchard, J.-P. & Armistead, C.	1999	<i>Business process management – lessons from European business</i>	Journal	Business Process Management Journal	BPM Strategic Alignment People
Rahimi, F., Møller, C. & Hvam, L.	2016	<i>Business process management and IT management: The missing integration</i>	Journal	International Journal of Information Management	BPM Information Technology

Ravesteyn, P. & Batenburg, R.	2010	<i>Surveying the critical success factors of BPM-systems implementation</i>	Journal	Business Process Management Journal	BPM
Rosemann, M. & vom Brock, J.	2015	<i>The Six Core Elements of Business Process Management</i>	Book Section		BPM
Schmidt, G.	2012	<i>Prozeßmanagement: Modelle und Methoden</i>	Book		BPM
Schmiedel, T., vom Brocke, J. & Recker, R.	2015	<i>Culture in Business Process Management: How Cultural Values Determine BPM Success</i>	Book Section		BPM Culture
Sidorova, A., Torres, R. & Al Beayez, A.	2015	<i>The Role of Information Technology in Business Process Management</i>	Book Section		BPM Information Technology
Skrinjar, R., Bosilj-Vukšić, V. & Indihar-Štemberger, M.	2008	<i>The impact of business process orientation on financial and non-financial performance</i>	Journal	Business Process Management Journal	BPM
Smart, P., Childe, S. & Maull, R.	1999	<i>Supporting Business Process Reengineering in Industry: Towards a Methodology</i>	Book Section		BPM
Smart, P., Maddern, H. & Maull, R.	2009	<i>Understanding Business Process Management: Implications for Theory and Practice</i>	Journal	British Journal of Management	BPM
Spanyi, A.	2015	<i>The Governance of Business Process Management</i>	Book Section		BPM Governance
Stöger, R.	2011	<i>Prozessmanagement: Qualität, Produktivität, Konkurrenzfähigkeit</i>	Book		BPM Methods
Van der Aalst, W.	2018	<i>Spreadsheets for business process management</i>	Journal	Business Process Management Journal	BPM
Van der Aalst, W., La Rosa, M. & Santoro, F.	2016	<i>Business Process Management</i>	Journal	Business & Information Systems Engineering	BPM Information Technology
Vom Brocke, J. & Mendling, J.	2018	<i>Frameworks for Business Process Management: A Taxonomy for Business Process Management Cases</i>	Book Section		BPM
Vom Brocke, J. & Rosemann, M.	2015	<i>Handbook on Business Process Management 1: Introduction, methods, and information systems</i>	Book		BPM
Vom Brocke, J., Zelt, S. & Schmiedel, T.	2015	<i>Considering Context in Business Process Management: The BPM Context Framework</i>	Journal	bptrends.com	BPM
Weske, M.	2007	<i>Business process management: Concepts, languages, architectures</i>	Book		BPM People
Zairi, M.	1997	<i>Business process management: A boundaryless approach to modern competitiveness</i>	Journal	Business Process Management Journal	BPM Methods People Culture
Zairi, M. & Sinclair, D.	1995	<i>Business process re-engineering and process management</i>	Journal	Management Decision	BPM Strategic Alignment Governance Culture

## Literature on Theory:

Author	Date	Title	Type	Journal	Method	Theory
Bansal, P.	2005	<i>Evolving Sustainably: A Longitudinal Study of Corporate Sustainable Development</i>	Journal	Strategic Management Journal	Empirical Research	Resource-based Theory Institutional Theory
Barney, J.B.	1991	<i>Firm Resources and Sustained Competitive Advantage</i>	Journal	Journal of Management		Resource-based Theory
Barney, J.B., Ketchen, D.J. & Wright, M.	2011	<i>The Future of Resource-Based Theory: Revitalization or Decline?</i>	Journal	Journal of Management	Literature Review	Resource-based Theory
Bellantuono, N., Potrandolfo, P. & Scozzi, B.	2016	<i>Capturing the Stakeholders' View in Sustainability Reporting: A Novel Approach</i>	Journal	Sustainability	Conceptual	Stakeholder Theory
Colquitt & Zapata-Phelan	2007	<i>Trends in Theory Building and Theory Testing: A Five-Decade Study of the Academy of Management Journal</i>	Journal	Academy of Management Journal	Literature Review	General
DiMaggio, P.J. & Powell, W.W.	1983	<i>The Iron Cage Revisited: Institutional and Collective Rationality in Organizational Fields</i>	Journal	American Sociological Review	Literature Review	Institutional Theory
Engert, S., Rauter, R. & Baumgartner, R.	2016	<i>Exploring the integration of corporate sustainability into strategic management: a literature review</i>	Journal	Journal of Cleaner Production	Literature Review	Management Theory
Freeman, R.E. & McVea, J.	2001	<i>A Stakeholder Approach to Strategic Management</i>	Journal	SSRN Electronic Journal	Literature Review	Stakeholder Theory
Gladwin, T.N., Kennelly, J.J. & Krause, T.-S.	1995	<i>Shifting Paradigms for Sustainable Development: Implications for Management Theory and Research</i>	Journal	Academy of Management Review	Conceptual	Management Theory
Grimble, R. & Wellard, K.	1997	<i>Stakeholder Methodologies and Natural Resource Management: a Review of Principles, Contests, Experiences and Opportunities</i>	Journal	Agricultural Systems	Literature Review	Stakeholder Theory
Hart, S.L.	1995	<i>A Natural-Resource-Based View of the Firm</i>	Journal	The Academy of Management Review		Natural Resource-based View
Hart, S.L. & Dowell, G.	2011	<i>A Natural-Resource-Based View of the Firm: Fifteen Years After</i>	Journal	Journal of Management	Literature Review	Resource-based Theory Natural resource-based View
Kraaijenbrink, J., Spender, J.-C. & Groen, A.J.	2010	<i>The Resource-Based View: A Review and Assessment of Its Critiques</i>	Journal	Journal of Management	Literature Review	Resource-based theory
Linnenluecke, M.K.,	2009	<i>Subcultures and Sustainability Practices: the Impact on</i>	Journal	Business Strategy and	Empirical Research	Management Theory

Russell, S.V. & Griffiths, A.		<i>Understanding Corporate Sustainability</i>		the Environment		Institutional Theory Stakeholder Theory
Priem, R.L. & Butler, J.E.	2001	<i>Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?</i>	Journal	The Academy of Management Review	Literature Review	Resource-based theory
Swarnapali, N.	2017	<i>Corporate Sustainability: A Literature Review</i>	Journal	Journal for Accounting Researchers and Educators	Literature Review	Institutional Theory Agency Theory Legitimacy Theory Signaling Theory Stakeholder Theory Resource-based Theory
Tranfield, D., Denyer, D. & Smart, P.	2003	<i>Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review</i>	Journal	British Journal of Management	Conceptual	
Vermeulen, W.J.V. & Witjes, S.	2016	<i>On addressing the dual and embedded nature of business and the route towards corporate sustainability</i>	Journal	Journal of Cleaner Production	Literature Review	Institutional Theory
Wilson, M.	2003	<i>Corporate Sustainability: What is it and where does it come from?</i>	Journal	Ivey Business Journal	Conceptual	Stakeholder Theory
Witjes, S. & Lozano, R.	2016	<i>Towards a more Circular Economy: Proposing a framework linking sustainable public procurement and sustainable business model</i>	Journal	Resources, Conservation and Recycling	Conceptual	Organisational Theory
Witjes, S., Cramer, J.M. & Vermeulen, W.J.V.	2018	<i>On corporate sustainability integration and the support tools</i>	Journal	World Review of Entrepreneurship, Management and Sustainable Development	Literature Review	Organisational Theory

## Appendix B. Questionnaire

### 1. Sustainability

- How is Corporate Sustainability defined in your company?
- To what degree is sustainability a relevant topic in your company? What is your motivation?
- What goals does your company want to reach in the area of sustainability? How are these goals measured?
- What has already been done to improve sustainability?
  - In the area of economical sustainability?
  - In the area of ecological sustainability?
  - In the area of social sustainability?
- Who is responsible for sustainability on the operative level?
- What is your responsibility regarding Corporate Sustainability?

### 2. Business Process Management

- To what degree is your Business Process Management already established in your company?

### 3. Corporate Sustainability and Business Process Management

- To what degree are Corporate Sustainability and Business Process Management linked?  
Which processes have the greatest impact on improving Corporate Sustainability?
- What has already been done to improve sustainability through the integration into Business Process Management?
- How did the projects of improving Sustainability go?
  - Difficulties
  - Success Factors/ Requirements
- Is there anything you would have liked to know beforehand? What would have been helpful, under what circumstances would the project have been more successful?
- What would you do different if you had to manage a similar project again?
- Regarding a method, which would improve sustainability with the help of Business Process Management, what would be important to you?

### 1. Is there anything you want to add?

## Appendix C. Validation Interview Guideline

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

*Is there anything relevant missing?*

### Evaluation of the Framework

*How is your overall impression of the framework?*

*How would you assess the applicability of the framework?*

Very good	Good	Satisfactory	Sufficient	Insufficient
1	2	3	4	5

*Does the framework help to overcome the existing difficulties?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

*Does the framework meet the identified requirements?*

- *Allow to detect the performance gap of business processes regarding sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

- *Support the integration of sustainability into processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5



- *Provide a means of benchmarking*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Promote the internal marketing of sustainability throughout the company*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

- *Allow to identify the relevant topics*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2	3	4	5

*Where do you see possibilities for the improvement of the developed framework?*

## Appendix D. Information Sheet for Interview Participants

### **Business Process Management and the improvement of Corporate Sustainability**

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#### **Introduction:**

My name is Felicitas Loepp, I am a postgraduate research student at Plymouth University. My research area is corporate sustainability and the working title of my PhD-thesis is "Improving Corporate Sustainability through Business Process Management". To generate practical and valuable knowledge I am searching for experts that are willing to participate in my research project.

#### **Project Summary:**

My research project aims to develop a model that helps companies to integrate Corporate Sustainability into the Business Process Management. The research questions are: Is Business Process Management a concept that can be used for the improvement for corporate sustainability? How can Business Process Management be used to improve corporate sustainability? To answer these questions I want to examine what companies want to achieve in the area of sustainability and how they already tried to do it. To generate a useful and practical model the needs of companies are also of interest in my research.

#### **Your contribution:**

You participate in an intensive interview, of about 60 minutes. The interview will be audio recorded and transcribed afterwards.

#### **Your rights:**

- All data will be processed anonymously
- You do not have to disclose any information that your company feels is sensitive
- You can withdraw your participation at any time and all your data will then be deleted

#### **Your benefits:**

- Help to generate new and valuable knowledge in the research area
  - Challenge and widen your own knowledge in the research area, through the discussion of your expertise knowledge and your experiences
  - Full access to the outcome of the study
  - The opportunity to improve the sustainability of your company
- 

If you have any further question, please do not hesitate to contact me. I am looking forward to our collaboration.

Kind regards

Felicitas Loepp

## Appendix E. Line-By-Line Coding in German Language

### Firma A

- Verantwortlicher ist Nachhaltigkeitsberater
- Nachhaltigkeit ist kundengetrieben
- Ökologische Ziele treiben das Thema voran
- Maßnahmen:
  - o Reduktion von Bautelevielfalt und Materialvielfalt
  - o Energieeinsparungen
  - o Reduktion Verwendung von gefährlichen Stoffen
- Früher Einstieg in das Thema Nachhaltigkeit als Erfolgsfaktor
- Ansatzpunkt für Nachhaltigkeit ist R&D – Eco-Design
- Commitment der Geschäftsleitung
- Umsetzung: Entwicklung einer Checkliste für Eco-Design
- Herausforderung alle Fragen zum Eco-Design können nicht von einer Person beantwortet werden
- kein Nachhaltigkeitsbericht
- Erfolgsfaktor: ausreichend Zeit für die Integration von Nachhaltigkeit
- die gesamte Supply Chain muss bei Nachhaltigkeit mitwirken
- Herausforderung: Verknüpfung gesellschaftlicher Verantwortung, nachhaltige Unternehmensführung und nachhaltige Produkte
- Motivation: Eigeninitiative des Unternehmens
- ISO 14001: Zertifizierung
- Einhaltung aller rechtlichen Anforderungen
- Nachhaltigkeit in Umweltstrategie verankert
- Nachhaltigkeit über das Umweltmanagement in Prozesse verankert
- soziale Aspekte in separater Strategie
- soziale Maßnahmen: Zusammenarbeit mit Hochschulen, Infotage
- gesetzliche Forderungen stellen Nachhaltigkeit zum Teil sicher
- Schwierigkeit: Nachhaltigkeit in Nicht-EU Standorten umzusetzen
- Strategisch und operative GPM auf Führungsebene
- Entwicklung Unternehmensstrategie in Zyklen
- Unternehmensstrategie wird in Ziel-Pyramiden überführt
- Controlling zum Nachhalten der Ziele
- Verwendung BSC
- Strategische Analyse: Umfeldanalyse (Stakeholder Analyse), interne Analyse, SWOT-Analyse
- Erst in Zukunft explizite Nachhaltigkeitsziele
- Ziel einer CO2 Bilanzierung über komplette Supply Chain
- CO2-Reduktionsziel soll festgelegt werden
- Ziel der regelmäßigen Datenerfassung für ein aktuelles Monitoring-System
- Herausforderung:
  - o Entwicklung von reaktiv zu proaktiv
  - o Festlegung realistischer Ziele mittels geeigneter Analysen
- Geschäftsprozesse legen fest, was vereinbart wurde
- Nachhaltigkeitsziele bestimmen welche Prozesse verändert werden, welche neu aufgesetzt werden müssen
- Managemententscheidungen auf Grundlage Stakeholder Analyse
- Gesetzliche Vorgaben, Normen, Stakeholder Analyse definiert Ziele
- Maßnahmen aus Zielen ableiten
- Bei Nachhaltigkeitszielen werden auch immer übergeordnete Ziele, der Unternehmensstrategie berücksichtigt
- Maßnahmen über Audits nachhalten

- Herausforderung: Kommunikation / Rechtfertigung von Nachhaltigkeitsprojekten gegenüber Stakeholdern
- Definierte Ziele über Top-Down und Bottom-Up
- Herausforderung: unterschiedliche Standorte haben unterschiedliche Ziele
- Ziel einer nachhaltigen Produktion
- Nachhaltigkeit bedeutet nicht im Nachgang zu kompensieren
- Nachhaltigkeitsziele gehen von oberster Ebene in Geschäftsbereiche
- Ziele werden durch Geschäftsprozesse unterstützt und umgesetzt
- interne Kommunikation über Flyer
- externe Kommunikation durch Internet
- Geschäftsprozesse müssen den Unternehmenszielen dienen
- Direkter Zusammenhang zwischen Geschäftsprozessmanagement und Nachhaltigkeit
- Geschäftsprozessmanagement und Nachhaltigkeit gehen Hand in Hand
- Prozesse müssen immer wieder an neue Themen angepasst werden
- Umweltmanagement = Nachhaltigkeitsaspekte in den jeweiligen Prozessen zu adressieren
- Jährliche Berichterstattung an das Management als Umweltmanagementprozess
- Ziele sind in großen Prozessen implementiert
- Prozesse müssen Einhaltung gesetzlicher Forderungen sicherstellen
- Geschäftsprozesse müssen Verhalten des Unternehmens widerspiegeln
- Größter Hebel für Nachhaltigkeit: Produktentwicklung
- Hebel für Nachhaltigkeit: Supply Chain – auch hier müssen Geschäftsprozesse auf Nachhaltigkeit gerichtet sein
- Herausforderung: Prüfung Supply Chain
- Nachhaltigkeit kostet Geld
- Nachhaltigkeitsziel: Supplier Diversity
- Supplier-Scorecard zur Bewertung von Suppliern
- Herausforderung: Geschäftsprozessmanagement für Nachhaltigkeit
- Integration von Regeln im ERP-System
- Herausforderung: sinnvolles, proaktives Geschäftsprozessmanagement für Nachhaltigkeit
- Umweltmanagement bereits in Prozessen umgesetzt
- Herausforderung:
  - o Verankerung von neuen Themen in Prozessen inklusive Verantwortlichkeiten, Monitoring
  - o Ressourcenverfügbarkeit, Verteilung Verantwortung
- Commitment Geschäftsleitung
- Bottom-Up, Top-Down, um Prozesse zu etablieren und festigen
- Kommunikation sicher Zielerreichung
- Nachhaltigkeitsmaßnahmen / Eco-Design als Verkaufsargument
- Erfolgreiche Integration neuer Prozesse, wenn zunächst DL der Nachhaltigkeitsabteilung
- Erfolgsfaktor: Zeit für Anpassung der Unternehmenskultur
- Herausforderung: Bestehende Prozesse erweitern, sinnvolle Integration → kein „drüber stülpen“
- Geschäftsprozessmanagement in Form von Projekten verändern
- Erfolgsfaktoren:
  - o Kommunikation mit Mitarbeitern
  - o Passende Verantwortlichkeiten wählen
  - o Tools, Werkzeuge, Informationen
  - o Nachhaltigkeitsmanager muss Impulse geben
  - o Veränderung muss vom Unternehmen gelebt werden
  - o Geschäftsprozesse müssen mit Nachhaltigkeit ausgestattet / integriert werden
  - o Durchhaltevermögen & Überzeugung
  - o Nachhaltigkeit muss in Prozessen etabliert werden
  - o Mitarbeitern Freiheiten lassen
- Verbesserung:

- Stringente Vorgaben zum Thema durch die Geschäftsleitung
- Klare Zielvorgaben
- Bessere Marktrecherche / Anforderungsanalyse
- Nachhaltigkeit bei Bewerberselektion berücksichtigen
- Herausforderung: Projekte müssen Abteilungsübergreifend aufgestellt werden
- Erfolgsfaktor:
  - Systematisches Monitoring
  - Transparenz durch Kennzahlen schaffen

#### Firma B

- ISO 14001 Zertifizierung
- ISO 5001 Zertifizierung
- Umweltpolitik und –leitlinien in Vision hinterlegt
- Nachhaltigkeit ist kundengetrieben
- Nachhaltigkeit wird auch von Lieferanten gefordert
- Nachhaltigkeit erfordert Betrachtung des gesamten Lebenszyklus
- Einhaltung gesetzlicher Forderungen
- Zusammen mit Abteilungsleitern Themen identifizieren und umsetzen
- Nachhaltigkeit mit höheren Kosten verbunden
- Nachhaltigere Produkte bei gleichbleibender Qualität
- Soziale Nachhaltigkeit:
  - Arbeitssicherheit
  - Gesundheitsmanagement
  - Mitarbeiterbindung
  - Mitarbeiterförderung
- Umweltaspekte werden 1x jährlich gemonitort
- Maßnahmenplan mit Terminen und Erfüllungsgrad
- dreiwöchiges Monitoring von Maßnahmen
- Rechtfertigung für Nicht-Zielerreichung
- Geschäftsleitung wird über Maßnahmenfortschritt informiert
- Geschäftsleitung Commitment
- SOS-Begehungen um Nachhaltigkeitsmaßnahmen zu identifizieren
- Interner Verhaltenskodex zu Nachhaltigkeit im Sinner TBL
- Regelmäßige Emails an Mitarbeiter zu Nachhaltigkeit
- Monitoring / Dokumentation von Projekten im Maßnahmenplan
- Nachhaltigkeit als primäres Ziel
- Kosten für Nachhaltigkeit zweitrangig
- Gewisser Druck notwendig, um Ziele zu erreichen
- Herausforderung: Nachhaltigkeit in Köpfe der Leute bringen
- Es muss einen Hauptverantwortlichen für Nachhaltigkeit geben
- Erfolgsfaktor: Ziele sichtbar machen
- Abbildung der Prozesse im ERP-System
- Abbildung von Nachhaltigkeit in Prozessen
- Schwierigkeit: Ressourcenverfügbarkeit
- Erfolgsfaktor: Kommunikation
- Allen Maßnahmen werden Verantwortliche zugewiesen
- Umsetzung: nach Umsetzung Maßnahmen folgt Umsetzung in Prozessen
- Größter Hebel für Nachhaltigkeit: Fertigung und Einkauf, Entwicklung-Lebenszyklusanalyse
- Berücksichtigung sozialer Nachhaltigkeit in der Supply Chain soweit möglich
- Kein öffentlicher Nachhaltigkeitsbericht
- Bericht für Geschäftsleitung
- Soziale Nachhaltigkeit durch Gründer getrieben

## Firma C

- Balance zwischen Kundenbedürfnissen und Umweltbelastung
- Mitarbeiter sollen sich im Umgang mit Ressourcen ökologisch richtig verhalten
- Umsetzung: Verhaltensrichtlinien / Prozessbeschreibungen + Audits
- Zertifizierungen
- Nachhaltigkeit ist kundengetrieben
- Balance zwischen Nachhaltigkeit und Ökonomie
- Erfolgsfaktor Nachhaltigkeit im Denken der Mitarbeiter verankern
- Nachhaltigkeit in den Unternehmenszielen und Jahreszielen
- Nachhaltigkeit als Perspektive in der Zielvereinbarung der Mitarbeiter
- Nachhaltigkeitsziele können stärker gewichtet werden
- Neuplanung von Prozessen berücksichtigt Nachhaltigkeit
- Ein internes und ein externes Audit pro Jahr
- Audits durch Qualitätsmanagement-Fachkraft
- Täglich Führungskraft und Mitarbeiter achten selbst auf Nachhaltigkeit-Missstände
- Regelmäßige Begehungen zur Kontrolle
- Erfolgsfaktor Ressourcen zur Verfügung stellen
- Schulung zur Verankerung bei Mitarbeitern
- Erfolgsfaktor: Intuitives System, keine Schulungen nötig
- Soziale Nachhaltigkeit:
  - o Unterstützung der Mitarbeiter in allen Lebenslagen
  - o Home Office
  - o Elternzeit
  - o Sport und Freizeitprogramme
  - o Schulungsangebote
- Austausch mit anderen Unternehmen zu Nachhaltigkeit
- Corporate Commitment
- Mitarbeiterbefragung, um soziale Ziele zu definieren
- Herausforderung: Eigeninitiative Mitarbeiter erforderlich
- Bewerber interessieren sich für Nachhaltigkeit
- Erfolgsfaktor: Kreativität / Freiheit
- Größter Hebel: Einkauf, Vertrieb
- Schwäche: Projektstrukturplan berücksichtigt Nachhaltigkeit nicht
- Projektträger muss Nachhaltigkeit berücksichtigen und einbringen
- Audits damit Änderungen langfristig umgesetzt werden
- Herausforderung: Mitarbeiter motivieren
- Erfolgsfaktor:
  - o Überschaubare Arbeitspakete
  - o Arbeitspakete mit Terminen versehen
- Herausforderung:
  - o Systematik etablieren, damit Nachhaltigkeit immer berücksichtigt wird
  - o Erfolg monitorieren
  - o Nachhaltigkeit in der gesamten Supply Chain sichern
- Verbesserung der Kommunikation
- Wünschenswert interner Austausch zur Problemlösung
- Verbesserung bezüglich Nachhaltigkeit:
  - o Zentraler Gesamtblick auf das Unternehmen
  - o Einsatz moderner Kommunikationsmittel
  - o Abteilung für Nachhaltigkeit
- Je größer das Unternehmen, desto schwieriger ist Integration von Nachhaltigkeit
- Kundenbedürfnisse und Nachhaltigkeit können nicht immer zu 100% erfüllt werden
- Definition Nachhaltigkeit im Sinne TBL
- Nachhaltigkeit in Unternehmenszielen
- Schwerpunkt ökologische Nachhaltigkeit



- Zielverfolgung wird in Prozessen abgebildet
- Nachhaltigkeitsziele werden entwickelt wie alle anderen Ziele auch
- Prozesse die Nachhaltigkeit betreffen nicht gesondert gekennzeichnet
- Nachhaltigkeit braucht ein Prozessmanagementsystem
- Nachhaltigkeit wichtig für langfristige Planung
- Nachhaltigkeit kundengetrieben / getrieben durch Öffentlichkeit
- Commitment Geschäftsleitung
- Nachhaltigkeit Element der langfristigen Geschäftsentwicklung
- Nachhaltigkeit kann in Prozesse eingebaut werden
- Für Integration von Nachhaltigkeitszielen wird gesamte Prozesslandschaft gescannt
- Anpassung der Prozesse bezüglich Nachhaltigkeit
- Nachhaltigkeit für Imagegewinn
- Nachhaltigkeit für bessere Positionierung im Markt
- Veröffentlichung einer Umwelterklärung
- Entstehung neuer Geschäftsfelder durch Nachhaltigkeit
- Herausforderung: lesbare Abbildung der Komplexität von Geschäftsprozessen
- Vorteil von Prozessen: konkrete Definition wie etwas sein soll und Abbildung dessen
- Integration Nachhaltigkeit in bestehendes Managementsystem
- Herausforderung: Aufrechterhaltung eines komplexen Managementsystems
- Integration Nachhaltigkeit sollte Komplexität des Managementsystems nicht weiter erhöhen
- Schulungen zu Prozessmodellierung
- Regeln, Spezifikationen für Prozesserstellung
- Prozessbeschreibung könnte um Nachhaltigkeitsaspekte ergänzt werden
- Audits können um Nachhaltigkeitsaspekte ergänzt werden
- Möglichkeit Scan des Unternehmens mit Hilfe eines Bewertungsschema für Nachhaltigkeit
- Brauchen Methodik um Nachhaltigkeit in Prozessen zu identifizieren
- Nachhaltigkeit nicht nur in Prozessen, auch im Rest des Unternehmens, Umgebung des Unternehmens
- Prozesse für Nachhaltigkeitsbewertung / -prüfung des Unternehmens
  - o Iterativ
  - o PDCA
  - o Nachhaltigkeitskriterien bewerten
  - o Einflussfaktoren
  - o Prozesse scannen

#### Firma D

- Organisation Nachhaltigkeit über Stabstelle
- Nachhaltigkeit kundengetrieben
- Motivation: Vorreiterrolle einnehmen
- ISO 14001 Zertifizierung, ISO 9001
- Intrinsische Motivation zur Erhebung Carbon-Footprint
- Entwicklung Standard zur Carbon-Footprint Zertifizierung
- Mitglied 2°Grad Stiftung
- Motivation stark intrinsisch
- Commitment Geschäftsleitung
- Nachhaltigkeit integraler Bestandteil der Geschäftstätigkeit
- Integration Nachhaltigkeit Top-Down: Geschäftsleiter-Stabstelle-einzelne Teams
- Nachhaltigkeitsmaßnahmen sollen als Standard etabliert werden
- Erfolgsfaktoren:
  - o Nachhaltigkeit integraler Bestandteil in Organisation
  - o Verankerung im Bewusstsein der Mitarbeiter
  - o Commitment / Überzeugung
  - o Unternehmensweite Integration in Prozesse und Teams
- Einhaltung gesetzlicher Anforderungen
- Erfüllung Kundenanforderungen

- Festlegung einer Vision zu Nachhaltigkeit
- Erfolgsfaktor:
  - o Ziele, die für das Unternehmen einen Mehrwert schaffen
  - o Zusammenarbeit mit Stakeholdern
- Strategieentwicklung Nachhaltigkeit aus Stakeholderanalyse
- Nachhaltigkeitsbericht
- Nachhaltigkeit im Sinne TBL
- 5 Nachhaltigkeit Handlungsfelder: Produkte, Umwelt, Mitarbeiter, Gesellschaft, Lieferkette
- Wesentlichkeitsanalyse für Nachhaltigkeit
- Je nach Handlungsfeld bestimmter Unternehmensbereiche / Fachbereiche
- Nachhaltigkeit-Road-Map mit 5-10 Jahresausblick
- Road-Map mit Maßnahmenliste (Verantwortlicher, Ziel, Termin)
- Maßnahmen zunächst in Projekten umsetzen
- Nach erfolgreichen Projekten Umsetzung in Prozessen
- Umsetzung: Nachhaltigkeit definiert Felder – in Prozessen verankern – auditieren
- Erfolgsfaktor: Mitarbeiter abholen und überzeugen
- Cardle-to-Cardle
- Berücksichtigung gesamter Produktlebenszyklus
- Integration Nachhaltigkeit in kleinen Schritten, schrittweise
- Mit Quick-Win-Projekten beginnen
- Nachhaltigkeit als Hygienefaktor
- Nachhaltigkeit in allen Prozessen und Produkten
- Nachhaltigkeitsprozess als Regelkreis: tun wir immer noch das Richtige? Funktioniert es? Belegen wir die richtigen Felder?
- Nachhaltigkeitsprozess muss iterativ sein
- KVP für Nachhaltigkeit einsetzen
- Nachhaltigkeit erzeugt Mehraufwand
- Balance zwischen Aufwand und Nutzen / Chancen und Risiken
- Wirtschaftlichkeit von Nachhaltigkeitsmaßnahmen
- Portfolioanalyse auch für Nachhaltigkeitsstrategieentwicklung
- Ressourcenmangel
- Nachhaltigkeit als neues Geschäftsfeld
- Nachhaltigkeit hat Analogie zum Qualitätsmanagement
- Nachhaltigkeit als Alleinstellungsmerkmal
- Bei der Integration mit Pilot-Projekten beginnen
- Nach erfolgreichen Pilot-Projekten, Implementierung in Prozessen
- Nachhaltigkeit-Anforderungsprofil im Entwicklungsprozess berücksichtigen
- Herausforderung: kontinuierlichen Wandel mit einbeziehen
- Nachhaltigkeitsprozess: Was muss wie getan werden, als Regelkreis definieren
- Entwicklung einer Systematik, wie ich im Bereich Nachhaltigkeit auf dem Laufenden bleibe
- Hebel ist die interne Überzeugung und externer Druck
- Nachhaltigkeit als moving target erfordert Regelkreis
- Nachhaltigkeit kann nicht in starren Prozess umgesetzt werden
- Nachhaltigkeit muss in Zyklen gedacht werden
- Welchen Einfluss kann Nachhaltigkeit auf Geschäftsprozessmanagement haben?
- Neues Verständnis von Prozessmanagement für Nachhaltigkeit nötig

#### Firma E

- Nachhaltigkeitsbericht vorhanden
- Integration von Nachhaltigkeit dezentral organisiert
- Austausch mit Wettbewerbern / Marktbetrachtung zu Nachhaltigkeit
- Impulse fürs Nachhaltigkeitsmanagement auch von extern
- Motivation:
  - o Glaubwürdigkeit
  - o Verantwortung

- Gesetze
- Stakeholder
- Umweltfreundlich als ökologisches Ziel
- Ziel: Balance zwischen Ökonomie, Ökologie und Sozialem
- Nachhaltigkeitsberichterstattung für Shareholder und Presse
- Nachhaltigkeitsberichterstattung, um mit Wettbewerbern gleichzuziehen
- Wesentlichkeitsmatrix um Nachhaltigkeitsthemen herauszuarbeiten
- Nachhaltigkeit als Teil bestehender Prozesse
- Nachhaltigkeitsziele durch Stakeholderbefragung & Wesentlichkeitsmatrix
- Berücksichtigung der gesamten Lieferkette
- Nachhaltigkeitsziele abgeleitet aus Unternehmenszielen
- Soziale Ziele: Menschenrechte, responsible sourcing
- Jährliche Strategieworkshops
- Schwerpunktthemen, Berücksichtigung externer, interner Interessen
- Nachhaltigkeitsplanung standortübergreifend
- Maßnahmen werden von Fachbereichen festgelegt
- EMAS Zertifizierung
- Herausforderung: Vergleichbarkeit standortübergreifend
- Kein Nachhaltigkeitsmanager, sondern Fachexperten aus einigen Bereichen
- Organisation sollte zentralisiert sein
- Herausforderung: Informationsgewinnung & Strategieentwicklung
- Nachhaltigkeit als Unternehmensziel
- Es sollte einen Nachhaltigkeitsmanager geben
- Problem geringe Beteiligung bei Umfragen
- Verwendung GRA
- Keine gesetzlichen Vorgaben zu Standards
- Nachhaltigkeitsthemen kommen aus Prozessen
- Nachhaltigkeitszielvereinbarung mit Kennzahlen
- Herausforderung: Ressourcenverfügbarkeit
- Probleme bei der Definition von KPIs für Nachhaltigkeit
- Erfolgsfaktor: Mitarbeiterakzeptanz
- Schneller Wandel im Management
- Ziel: einfachere, weniger umfangreiche Berichterstattung

#### Firma F

- Commitment Geschäftsleitung
- Motivation:
- Imagegewinn
- Vorreiterrolle einnehmen
- Intrinsisch
- Nachhaltigkeit getrieben vom Management
- Einhaltung gesetzlicher Forderungen
- Nachhaltigkeit in Stababteilung organisiert
- Balance zwischen Nachhaltigkeit und ökonomischen Zielen / Wirtschaftlichkeit halten
- Soziale Ziele:
  - Sicherheit
  - Arbeitsschutz
- Verankerung von Nachhaltigkeit in der Strategie
- Erfolgsfaktor:
  - Kennzahlen, Zertifizierungen Audits
  - Interne Audits
- Reporting
- Externe Kontrolle Sustainability Index
- Umsetzung Top Down: Ziele mit Geschäftsleitung festlegen, Stabstelle, operative Ebene
- Maßnahmenplan mit technischen, organisatorischen, persönlichen Maßnahmen

- Globale Umsetzung von Zielen und Maßnahmen
- Laufzeit zur Umsetzung von Maßnahmen wird festgelegt
- Herausforderung:
  - o Kommunikation
  - o Überzeugung, Motivation Mitarbeiter
  - o Identifikation mit Nachhaltigkeitszielen
  - o Verständnis schaffen
  - o Ressourcen, Mitarbeiterkapazität
  - o globale Vorgaben trotz Länderspezifika
- Erfolgsfaktor:
  - o Persönliche Kommunikation
  - o Ressourcen
  - o Komplementäre Ziele
  - o Akzeptanz bei Mitarbeitern schaffen
  - o Operative bei Maßnahmenplanung einbeziehen
- Integration Nachhaltigkeit in bestehende Prozesse
- Nachhaltigkeit muss in jedem Prozess drin sein
- Über Integration von Nachhaltigkeit in Prozesse Integration in Arbeitsalltag
- Herausforderung: Schnelligkeit und Zeit als Ressource
- Erfolgsfaktor:
  - o Kommunikation nach außen / Sichtbarkeit
  - o Führungskraft als Vorbild / visible leadership
- Balance Ökologie / soziale Ziele / Ökonomie
- Soziale Ziele: positives Image bei Bewerbern / Studenten
- Sicherstellen Wirtschaftlichkeit von Nachhaltigkeitsmaßnahmen
- Nachhaltigkeitsbericht für Öffentlichkeit
- Commitment Mitarbeiter erforderlich

#### Firma G

- Programm für Nachhaltigkeitspolitik
- Nachhaltigkeit in Firmengrundsätzen
- Nachhaltigkeitsziele vor allem ökologisch
- Bisher kaum Kommunikation nach außen
- Kein Nachhaltigkeitsbericht
- Motivation
  - o Kunden
  - o Stakeholder
- ISO 14001 & ISO 5001 Zertifizierung
- Nachhaltigkeitspolitik umfasst Qualität, Umwelt, Energie, Arbeitsschutz, Gesundheit, Sicherheitspolitik, Informationstechnologie
- Einhaltung gesetzlicher Anforderungen
- Herausforderung: Standortübergreifende Vernetzung
- Herausforderung: Implementation in Prozesse
- Nachhaltigkeit erfordert Kommunikation mit diversen Ansprechpartnern
- 2x Jahr Vernetzungstage zum Austausch
- Kein Gesamtziel für Nachhaltigkeit
- Individuelle Ziele für Qualität, Umwelt, Energie
- Erfolgsfaktor:
  - o Mitarbeiter bestärken
  - o Alte Routinen aufbrechen
- Nachhaltigkeitsprogramm um Prozesse, Aktivitäten, Strömungen zu verorten
- Netzwerk, um voneinander zu lernen
- Prozesshaus: Definitionen, Meilensteine, Prozessbeschreibungen mit Hinweisen zu Nachhaltigkeit
- Nachhaltigkeit als Teil der regulären Prozessbeschreibung, Prozessschritte

- Prozesse ohne direktes Nachhaltigkeitslabeling
- Nachhaltigkeitsziele als Top-Down
- Maßnahmen werden aus Zielen abgeleitet
- Herausforderung: Kommunikation unternehmensweit
- Herausforderung: Nachhaltigkeit nicht nur auf Umweltschutz beschränken
- Herausforderung: allen Elementen der TBL gleichen Wert beizumessen
- Unternehmen muss zu 100% unter Nachhaltigkeit stehen
- Erfolgsfaktor:
  - o Corporate Commitment über alle Hierarchieebenen
  - o Glaubwürdigkeit
- Ziel: Entwicklung einer Kennziffer für Nachhaltigkeit
- Herausforderung: Vergleichbarkeit zwischen Unternehmen → jeder definiert Nachhaltigkeit anders

#### Firma H

- Motivation durch Interesse Firmengründer
- Nachhaltigkeit schon immer wichtig für das Unternehmen
- Ökologische Ziele haben sehr hohe Bedeutung
- soziale Ziele: Entwicklung Bildungsprogramm, Ernährungsprogramme, Unterstützung in Entwicklungsländern
- Ziel: Balance zwischen Ökologie, Sozialem und ökonomischen Zielen
- Unternehmensziele aus Nachhaltigkeitsgedanken festlegen
- Unternehmenstätigkeit darauf ausrichten Gutes zu tun
- Wirtschaftlicher Erfolg als Basis
- Motivation: Stakeholder
- SDGs beeinflussen Unternehmensentwicklung
- involviert bei gesetzlichen Entwicklungen
- Ziel: Verbraucherschutz
- Nachhaltigkeitsziele abgeleitet aus SDGs
- Ökologische Ziele beispielsweise erneuerbarer Strom, Photovoltaikanlagen
- Nachhaltigkeitsziele & KPIs hauptsächlich im Bereich Umwelt
- Soziale Ziele: Arbeitsunfälle reduzieren, durch Schulungen
- Nachhaltigkeitsziele meist qualitativ
- Herausforderung: Definition von KPIs für Nachhaltigkeit
- Erfolgsfaktor:
  - o man muss sich Zeit zur Umsetzung nehmen
  - o Nachhaltigkeitsmanager einsetzen
  - o Austausch mit anderen Unternehmen
- Ziel / Herausforderung: Vorreiterrolle einnehmen
- Pro Standort ein Umweltmanager
- Nachhaltigkeit in der Kommunikation angesiedelt
- Umsetzung Kommunikation von Zielen durch Umweltmanager an betroffene Bereiche
- Ziel: Produkt komplett aus nachwachsenden Rohstoffen
- Umsetzung
  - o Lebenszyklusanalyse – Ökobilanz, wirtschaftliche Betrachtung, technische Betrachtung
  - o Tools „Design for Environment“
  - o keine direkte Abbildung in Prozessen, teilweise Tools
  - o Recyclingverantwortliche, Kontakt zu Regierung / Organisationen
  - o Kommunikation über Anzeigetafel (Abfallrate)
  - o Aufnahme von Zielen in Balanced Scorecard
- Erfolgsfaktor: Zentrale Steuerung beschränkt Flexibilität
- Umsetzung: Top-Down, Zentrale steuert weiter an einzelne Bereiche
- Herausforderung
  - o Nachhaltigkeit in Köpfen der Mitarbeiter festigen

- Herausforderung: mehr Kommunikation, mehr Training
  - Bereitschaft von Mitarbeitern Themen anzunehmen
- Entsprechende Budgets müssen bereitgestellt werden
- Erfolgsfaktor: Standards die durch Audits nachgehalten werden
- Ziel Framework: Ziele definieren, mit Kennzahlen hinterlegen, Audits zum regelmäßigen nachhalten
- Benchmarking für Nachhaltigkeit wäre sehr hilfreich
- Schwierigkeit, dass das Framework für verschiedene Unternehmen passt
- Hilfreich wäre ein einheitliches übergreifendes Label für Nachhaltigkeit
- Erfolgsfaktoren:
  - Mitarbeiterbindung
  - frühe Kommunikation
  - Budgets dafür
  - Vorgehensweisen und Standards vorgeben
  - Top-Down

#### Firma I

- Energiesparmaßnahmen aus Kostengründen
- Motivation für Nachhaltigkeit durch wirtschaftliche Aspekte
- Motivation durch rechtliche Vorgaben
- Nachhaltigkeit nicht kundengetrieben
- Nachhaltigkeitsberichte wegen gesetzlicher Forderung
- Nachhaltigkeit Stakeholder getrieben
- Verantwortungsvoller Umgang mit der Umgebung
- Berücksichtigung ökologischer Aspekte
- Nachhaltigkeit mit Kosten verbunden#
- Mitarbeiterbindung durch Aspekte sozialer Nachhaltigkeit
- Arbeitsschutz als gesetzliche Vorgabe
- Arbeitsschutz als Selbstverständlichkeit
- Umsetzung aller Maßnahmen die gesetzlich gefordert werden
- Interne Audits um Nachhaltigkeitsmaßnahmen nachzuhalten
- PDCA zur generellen kontinuierlichen Verbesserung
- Nachhaltige Erhaltung des Unternehmens als innerer Antrieb
- GPM auch für Nachhaltigkeitszwecke
- Intensive PDCA-Schulungen
- Langfristige Planungen
- Kontrolle durch Audits
- Maßnahmen durch Prozessowner initiiert
- Maßnahmenumsetzung durch Prozessmanager
- Großprojekte setzen Stakeholder Analysen ein
- Verwendung v on Risikoanalysen
- Schnittstellenbetrachtung
- Nachhaltigkeitsprojekte werden an Geschäftsleitung berichtet
- Nachhaltigkeitsprojekte werden über wirtschaftliche Ziele gesteuert
- Commitment der Geschäftsleitung für Nachhaltigkeitsprojekte
- PDCA für Nachhaltigkeitsprojekte
- KVP mit Prämien
- KPIs für Nachhaltigkeit nicht als solche gekennzeichnet
- Schwierigkeiten bei der Entwicklung von KPIs für Nachhaltigkeit
- IT-Systeme zum Kennzahlentracking
- Manche Prozesse abhängig von den Kompetenzen der Mitarbeiter
- R&D berücksichtigt Nachhaltigkeit nur, wenn es in die Prozesse integriert ist
- Konflikte entstehen zwischen Produkthanforderungen und Nachhaltigkeitsanforderungen
- Gesetze heben entstehende Konflikte teilweise auf

- Es sollte international gültige Gesetze zur Nachhaltigkeit geben, um die Wettbewerbsfähigkeit zu erhalten

#### Firma J

- Nachhaltigkeit im Sinne TBL
- Ökologische Ziele: Energieeinsparung, Ressourcenverbrauch, Natur- und Umweltschutz
- Soziale Nachhaltigkeit ist im HR
- Nachhaltigkeit wird von der Eigentümerfamilie getrieben
- Nachhaltigkeit gleichrangig mit wirtschaftlichem Erfolg
- Top-Down-Ansatz für Nachhaltigkeit
- Nachhaltigkeit im Sinne SDGs
- SDGs definieren Unternehmenszweck
- Intrinsisch motiviert
- Sustainability Dow Jones Rating
- Nachhaltigkeit als Marketingargument
- Nachhaltigkeitsthemen
  - o Energie
  - o Wasser
  - o Ressourcen
  - o Abfall
  - o Umgang mit Menschen
  - o Umgang mit Mitarbeitern
  - o Umgang mit der Umgebung
- Balance zwischen Ökonomie und Ökologie
- Commitment Geschäftsleitung
- Top-Down-Ansatz für Nachhaltigkeit
- Nachverfolgung Ziele über tracking tools und reporting
- Sustainability Report
- Strukturierter Prozess zur Festlegung Nachhaltigkeitsziele
- Validierung der Zielerreichung
- Nachhaltigkeit im Mindset verankert, da langfristig im Fokus
- Nachhaltigkeit als Selbstverständnis
- Unternehmenskultur passend zu Nachhaltigkeit
- Nachhaltigkeitsziele aus Konzernzielen, müssen in Einklang stehen
- Anspruchsvolle Nachhaltigkeitsziele
- KVP aus für Nachhaltigkeit
- Nachhaltigkeitsziele im Intranet veröffentlicht, erzeugt positiven Druck
- Commitment zu Nachhaltigkeitszielen
- Standortübergreifender Austausch / Wissenstransfer
- Erhaltung des Planeten als oberstes Nachhaltigkeitsziel
- An allen Standorten gleiche Nachhaltigkeitsauflagen
- Soziale Ziele:
  - o Wissenstransfer durch kostenfreie Patente für Entwicklungsländer
  - o Unterstützung umliegender Gemeinden
  - o Unterstützung umliegender Schulen
- Ökologische Ziele:
  - o Reduktion von Flugreisen von Mitarbeitern
  - o Vorgaben für Geschäftswagen
- Prozesse zur Überprüfung des gesamten Produktlebenszyklus
- Nachhaltigkeit in der Produktentwicklung
- Nachhaltigkeit in Prozessen fest hinterlegt
- Prozesse mit Checklisten die Nachhaltigkeit beinhalten
- Entwicklung neuer Technologien, um Nachhaltigkeitsziele zu erreichen
- Erfolgsfaktor: Mitarbeiter mitnehmen
- Eigeninitiative von Mitarbeitern, dafür gibt es ein Verbesserungswesen

- Nachhaltigkeit kostet Geld
- Erfolgsfaktor: Bereitstellung notwendiger Ressourcen
- Unternehmen muss Projekte trotz höherer Kosten umsetzen
- Corporate commitment
- Erfolgsfaktor: Kommunikation
- Schrittweise Integration von Nachhaltigkeit
- Nicht alle Nachhaltigkeitshandlungsfelder gleichzeitig angehen
- Tools um Nachhaltigkeit strukturiert zu integrieren
- Nachhaltigkeit im Arbeitsalltag, in Methoden, in Tools
- Für Nachhaltigkeitsintegration mit Unternehmenskultur beginnen

#### Firma K

- Nachhaltigkeitsziele müssen in der Strategie verankert werden
- Umweltmaßnahmen führen zu Kostensenkungen
- Nachhaltigkeit nicht kundengetrieben
- Nachhaltigkeit könnte in Zukunft kundengetrieben sein
- Unternehmen haben gesellschaftspolitische Verantwortung
- Rechtliche Anforderungen als Antrieb für Nachhaltigkeit
- Maßnahmen für Nachhaltigkeit gehen über rechtliche Anforderungen hinaus
- Hohe Motivation für Nachhaltigkeit durch Verankerung in der Strategie
- Soziale Nachhaltigkeit als Selbstverständlichkeit
- Integration von Nachhaltigkeit über die gesamte Supply Chain
- Lieferwege als größter Hebel zur CO2-Einsparung
- Soziales Engagement, ohne die Festlegung von Zielen
- Ergänzung der Lean-Verschwendungen um Green-Verschwendungen
- Analyse der Green-Verschwendungen wertstromorientiert
- Nachhaltigkeits-Road-Map als Ergebnis der Analyse
- Hauptansatzpunkt für Nachhaltigkeit: Wege verringern, Stromverbrauch reduzieren
- Zur Entwicklung von Nachhaltigkeitsmaßnahmen braucht man KPIs
- Ideen und Umsetzung zur Nachhaltigkeit müssen von den Mitarbeitern kommen
- Nachhaltigkeitskennzahlen werden monatlich gemonitort
- GPM zur Dokumentation von gelebten Prozessen
- Keine explizite Integration von Nachhaltigkeit ins GPM
- Kein Top-Down Prinzip für Nachhaltigkeitsziele
- Ökologische Ziele werden anders strukturiert und umgesetzt, als Nachhaltigkeitsziele
- GPM zur Integration von Nachhaltigkeit zu kompliziert
- Verankerung von Nachhaltigkeit durch Normen
- Erfolgsfaktor: Mitarbeiter integrieren und motivieren
- Schwierigkeit, wenn Nachhaltigkeitsmaßnahmen von Dritten abhängig sind
- Zur Integration von Nachhaltigkeit muss immer der Gesamtkontext berücksichtigt werden und verschiedene Blickwinkel müssen eingenommen werden
- Change Management für die Integration von Nachhaltigkeit
- Erfolgsfaktor:
  - o offene Kommunikation der Integration von Nachhaltigkeit
  - o Verantwortlichkeiten und Zuständigkeiten klären
  - o klare Strukturen festlegen
  - o Ziele und Strategie festlegen
- Kostensenkung als Motivation für Nachhaltigkeit
- Erfolgsfaktor:
  - o Integration an vorhandene Konzepte anlehnen, z.B. Lean Management
  - o Integration auf strategische Ebene heben
  - o Nachhaltigkeit auf breiter Ebene kommunizieren, Kommunikation mit Mitarbeitern
  - o Berücksichtigung unternehmensspezifischer Aspekte
  - o Commitment des Managements



- Schulungen
- Berücksichtigung der Umgebungseinflüsse
- Transparenz schaffen durch Kommunikation/ Information
- Integration von Nachhaltigkeit braucht Zeit
- Change Management braucht Zeit
- Strategiebild in dem Nachhaltigkeit verankert ist, keine separaten Ziele/ Methoden

#### Firma L

- Zentrale Koordination von Nachhaltigkeit
- Nachhaltigkeit in Prozessen verankert
- Integration von Nachhaltigkeit branchenüblich
- Nachhaltigkeit als wirtschaftlicher Treiber
- Verantwortung als Motivation für Nachhaltigkeit
- Nachhaltigkeit im Geschäftsmodell integriert
- Mit Produkten Beitrag zu Fortschritt & nachhaltiger Entwicklung leisten
- Erfolgreiches Wirtschaften abhängig davon Verantwortung für Umwelt und Gesellschaft zu übernehmen
- Nachhaltigkeit in Geschäftseinheiten verankert
- Nachhaltigkeit bietet neue Möglichkeiten und Risiken
- Ökonomische Ziele:
  - Effizienzprogramme
  - Innovationsziele
- Ökologische Ziele
  - Klimaschutz
  - Umweltschutz
  - Energieeffizienz
- Soziale Ziele
  - Familie und Beruf
  - Diversity
  - Arbeitnehmerfluktuation
  - Menschenrechte in Lieferkette
- Ziele sind differenziert nach finanziellen und nicht-finanziellen
- Nachhaltigkeitsbericht
- Verankerung Nachhaltigkeit im Top-Management
- Jahreszyklus für:
  - Betrieblichen Umweltschutz
  - Sicherheit Mitarbeiter
  - Arbeitsschutz
  - Gesundheitsmanagement
  - Produktsicherheit
  - Exporte
  - Gefahrstoffe
  - Gefahrgutmanagement
- Erfüllung gesetzlicher Anforderungen
- Top-Down Ansatz für Nachhaltigkeit
- Monitoring von Zielen
- Nachhaltigkeit im Personalmanagement, Supply Chain
- Innovationen in Bezug auf Nachhaltigkeit
- Monitoring der Effekte von Nachhaltigkeitsmaßnahmen
- 3 Säulen der TBL haben gleichen Stellenwert
- Ökonomische Kennzahlen dominant, stehen im Vordergrund
- Portfolio wird auf Nachhaltigkeit ausgerichtet
- Es gibt einen Business Case für Nachhaltigkeit
- Nachhaltigkeitsmaßnahmen können Mehrwert für Unternehmen erzeugen
- Erfolg von Nachhaltigkeitsmaßnahmen wird an ökonomischer Güte gemessen

- Ziel der Balance zwischen drei Säulen Nachhaltigkeit
- Ökologische und soziale Themen können wirtschaftlichen Nutzen haben
- Nachhaltigkeit integriert in Geschäftsprozessmanagement
- Geschäftsprozessmanagement als systematischer Ansatz um Geschäftsprozesse zu steuern, auszurichten, messen, designen
- Für alle Ziele der gleiche Prozess, gleiche Bewertungskriterien, gleiche Steuerinstrumente
- PDCA auch für Nachhaltigkeit
- KVP für Nachhaltigkeit
- Umsetzung von Maßnahmen dezentral organisiert
- Erfolgsfaktor:
  - o Kommunikation
  - o Mitarbeiter mitnehmen
  - o Konsequenz bei Umsetzung, Zielerreichung
  - o Glaubwürdigkeit
  - o Commitment Geschäftsleitung
- Glaubwürdigkeit durch Top-Down-Ansatz
- Hürde: Bürokratie in Deutschland
- Umsetzung: Nachhaltigkeitscheck
- Geschäftsmodell auf Nachhaltigkeit ausrichten – Erfolgsfaktor
- Nachhaltigkeit muss branchenabgestimmt behandelt werden
- Standardisierung beim Thema Nachhaltigkeit schwer möglich
- Framework muss erreichen, dass Nachhaltigkeit integraler Bestandteil wird → braucht Spielraum, um Unternehmensspezifika berücksichtigen zu können
- Stakeholderanalyse zu Beginn
- SDGs als Framework für Nachhaltigkeit
- Für Nachhaltigkeitsthemen Chancen und Risiken herausarbeiten / bewerten
- Relevanz von Nachhaltigkeitsthemen bewerten
- Prozesse selbst müssen nachhaltig sein
- Nachhaltigkeit sollte nicht als eigenständiges Thema behandelt werden
- Vorhandenes muss überarbeitet und angepasst werden

#### Firma M

- Integration von Nachhaltigkeit durch Nachhaltigkeitsbericht nach GRI
- Unternehmensstrategie gegliedert in TBL
- Nachhaltigkeit in Balanced Scorecard
- Integration von Nachhaltigkeit über einen Top-Down Ansatz
- Die Kommunikation nach Außen als Motivation für Nachhaltigkeitsberichterstattung
- Nachhaltigkeit ist ein großes Thema
- Nachhaltigkeit im Unternehmen als Stabstelle organisiert
- Nachhaltigkeit ist ein Querschnittsthema
- Nachhaltigkeitsmaßnahmen werden durch Arbeitsgruppen geplant und umgesetzt
- Alle Unternehmensbereiche in die Integration involviert
- Erfolgsfaktor:
  - o Verankerung von Nachhaltigkeit in die Strategie & Vision
  - o Commitment der Geschäftsleitung
  - o Integration von Nachhaltigkeit in das gesamte Unternehmen
- Einbindung von Nachhaltigkeit in Prozesse fehlt noch
- Verbesserungspotential bei der Umsetzung von Maßnahmen und beim Monitoring
- Ziel der Nachhaltigkeitsmaßnahmen
  - o Imagegewinn
  - o auf SDGs miteinzahlen
  - o Ressourcenschutz
- Jeder muss bei der Zielerreichung mitwirken
- Soziale Ziele sind Mitarbeiterbezogen:
  - o Gesundheitsmanagement

- Was kann das Unternehmen für die Gesellschaft tun
  - Kundenservice
- Unternehmen möchte Gesetzgebung im Bereich Nachhaltigkeit anstoßen
- Nachhaltigkeitsmanager koordiniert alles
- Top-Down für Nachhaltigkeit: Geschäftsleitung – Stabstelle – Abteilungsleiter – Team
- Defizite in der Kommunikation mit den Mitarbeitern, Mitarbeiter mitzunehmen
- Integration von Mitarbeitern durch Aufforderung der Mitarbeiter Verbesserungsvorschläge einzureichen
- Road-Map für Nachhaltigkeit mit Zielen und Maßnahmen und KPIs fürs Monitoring
- PDCA-Zyklen für Nachhaltigkeitsziele
- Probleme: Ressourcenverfügbarkeit, Mitarbeiterkapazitäten
- Erfolgsfaktor:
  - System zur Erfassung der Nachhaltigkeitsdaten, regelmäßige Zyklen zur Datenerfassung
  - Verantwortlichkeiten müssen klar definiert sein
  - Monitoring mit Druck durch die Geschäftsleitung
  - Eigeninitiative der Teams und Mitarbeiter
  - Kommunikation der Wichtigkeit von Nachhaltigkeit durch die Geschäftsleitung
  - Mitarbeiter müssen die Sinnhaftigkeit von Nachhaltigkeit verstehen
  - systematische, strukturierte, automatische Datenerfassung
  - Verankerung von Nachhaltigkeit bei den Führungskräften
  - Nachhaltigkeit bereits beim Einstellungsprozess integrieren, Selektion zukünftiger Mitarbeiter
  - Erfolgsfaktor: Verankerung bei Mitarbeitern durch wiederholende Kommunikation
  - Erfolgsfaktor: Nachhaltigkeitsberichterstattung erzeugt Verbindlichkeit
- Nachhaltigkeitsbericht nach GRI als Anstoß zum Thema an sich
- Erfolgsfaktor: GRI Bericht als Standard verwenden
- Integration von Nachhaltigkeit über den KVP

#### Firma N

- Definition Nachhaltigkeit über TBL & SDGs
- Nachhaltigkeit in Strategie verankert
- Top-Down Ansatz für Nachhaltigkeitsziele
- Verankerung von Nachhaltigkeit in der Wertschöpfungskette
- Ziel: Gewinn nachhaltig erwirtschaften
- Nachhaltigkeit kundengetrieben
- Nachhaltigkeit wichtig bei der Bewertung des Unternehmens als Lieferant
- Erfüllung gesetzlicher Anforderungen
- Nachhaltigkeit in Unternehmensstruktur verankert
- Stakeholder-Dialoge zum Thema Nachhaltigkeit
- Umsetzung: Stakeholder Befragung & Wesentlichkeitsmatrix
- 3 Säulen für Nachhaltigkeitsziele: Umwelt, Mitarbeiter, Compliance
- Motivation:
  - Globale Entwicklung
  - Verantwortung
  - Beitrag zu SDGs leisten
- Ziele: Klimaschutz – Klimaschutzstrategie
- Integration SDGs in Unternehmensstrategie
- Intrinsische Motivation des Unternehmens
- Fortschrittsbericht mit Nachhaltigkeitszielen
- Soziale Ziele:
  - Mitarbeiter in den Fokus
  - Work-Life-Balance
- Umweltmanager verantwortlich für Nachhaltigkeitsmanagement

- ISO Zertifizierung
- CSR Aspekte im HR Bereich
- Audits in allen Standorten
- Compliance Vorschriften
- Strategische Festlegung von Schwerpunktthemen
- Umsetzung der Schwerpunktthemen in die jeweiligen Unternehmensbereiche
- Prozess zur Umsetzung von Schwerpunktthemen muss noch definiert werden
- Nachhaltigkeitsstrategie Top-Down
- Corporate Center übernimmt Steuerung für Nachhaltigkeit
- Ansprechpartner in allen Standorten / Tochtergesellschaften
- Keine explizite Nachhaltigkeitsabteilung
- Commitment Geschäftsleitung
- Erfolgsfaktoren:
  - o Klare Zielvorgaben
  - o Ressourcenverfügbarkeit
  - o Verankerung in der Strategie
  - o Nachhaltigkeit in Prozesse einbetten
  - o Nachhaltigkeit in Strategieprozess einbetten
  - o Nachhaltigkeit von Anfang an in Prozesse
  - o Langlaufende Kennzahlen definieren, um Erfolg messbar zu machen
  - o Schnittstellen und Prozesse definieren
  - o Kontinuierliches Monitoring
  - o Mehrwert erkennen
  - o Mitarbeiter mitnehmen / überzeugen
  - o Bestehende Prozesse erweitern
  - o Unternehmenskultur berücksichtigen
- Definierte Prozesse müssen gelebt werden
- Herausforderung: Chancen statt Risiken im Bereich Nachhaltigkeit sehen
- Einhaltung gesetzlicher Anforderungen

#### Firma O

- Commitment Management zur Nachhaltigkeit
- Nachhaltigkeit in alle Unternehmensbereiche integrieren
- Nachhaltigkeit sollte kundengetrieben sein
- Nachhaltigkeit als hard fact bei Kaufentscheidung der Kunden, als Zukunftsvision
- In Zukunft gibt es einen Business Case für Nachhaltigkeit
- Mitarbeiter können von Nachhaltigkeit überzeugt werden wenn es kundengetrieben ist
- Nachhaltigkeit im kompletten Produktlebenszyklus
- Nachhaltigkeit im Produktdesign: Energieeffizienz, Lärmreduktion, Vermeidung von gefährlichen Stoffen, Recycling Fähigkeit der Produkte
- Ökonomische Nachhaltigkeit ist Grundlage des Unternehmens
- Nachhaltigkeit im Sinne der TBL spielt immer größere Rolle
- Entwicklung der Bedeutung von Nachhaltigkeit entspricht einer e-Funktion
- Unternehmen können Kunden beeinflussen, mehr Wert auf Nachhaltigkeit zu legen
- Nachhaltigkeitsziele werden durch KPIs gemonitort
- Soziale Nachhaltigkeit: Volunteering, Spenden, Flüchtlingshilfe
- Soziale Nachhaltigkeit ist durch einen externen Partner organisiert
- Nachhaltigkeitsziele werden in einem Gremium festgelegt, Top-Down
- Nachhaltigkeits-Road-Map mit 5 Jahres Horizont
- Top-Down in Nachhaltigkeitszielvereinbarung
- Höhere Kosten durch Nachhaltigkeit, z.B. grüner Strom
- Erfolgsfaktor: Sichtbarkeit von Nachhaltigkeit im Unternehmen
- Abteilung für Nachhaltigkeit muss Macht haben
- Freigabe von Produkten durch die Abteilung für Nachhaltigkeit
- Erfolgsfaktor: Commitment der Geschäftsleitung zur Nachhaltigkeit

- Erfolgsfaktor: Bekanntheit des Nachhaltigkeitsmanager
- Nachhaltigkeitsmanager mit Qualitätserfahrung von Vorteil
- Nachhaltigkeit ist zukunftsgerichtet
- Schwierigkeit: unterschiedliche Rahmenbedingungen in unterschiedlichen Ländern
- Kein international einheitlicher Standard für Nachhaltigkeit
- Ziel: einheitlicher global anerkannter Standard für Nachhaltigkeit
- Strategieentwicklung ist größter Hebel für die Integration von Nachhaltigkeit
- 2. Hebel: Produktinnovation und Entwicklung
- Das zu entwickelnde Framework muss transparent sein
- Framework sollte zu einem global anerkannten Standard werden
- Nachhaltigkeit muss zum Added-Value werden
- Nachhaltigkeit braucht ein Netzwerk

## Appendix F. Interview Company A

Industrial Sector:	Communication Technology
Employees:	> 10,000
Interviewee Position:	Manager Sustainability
Interviewee Seniority:	11 years
Interview Settings	09.05.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Corporate Governance
- Economy
- Corporate Social Responsibility in sense of environment and social
- Corporate Citizenship

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

Externally:

- The topic came in through the supply chain – customers showed interest in sustainability activities, especially regarding quality and environment.  
→meanwhile customers demand it
- Social questions have become more and more important.
- More and more legal regulations have to be implemented into the processes.

Internally:

- Already in the 90s it was realized that a reduction of component diversity, material diversity, a reduction of energy consumption and a reduced consumption of e.g. dangerous substances is of importance for maintaining the company.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Reputation and marketing
- Viewing the complete supply chain end-to-end

*What has already been done to improve sustainability?*

*Economical*

- Maintaining the company as the main goal

*Ecological*

- ISO 14001 certification
- An environmental strategy (products, safeguarding company sites, local laws, etc.) was written, as an addition to existing corporate strategy.
- Eco-design

*Social*

- Lies within HR (not the interviewees field)
- Talent-management, cooperation with educational institutions

*Who is responsible for sustainability on the operative level?*

- The Interviewee is Manager Sustainability

*What is your responsibility regarding Corporate Sustainability?*

- Manager Sustainability

*To what degree is your Business Process Management already established in your company?*

- Very well established

*To what degree are Corporate Sustainability and Business Process Management linked?*

- New regulations must be implemented in the processes, but it is not possible to anchor it directly within the processes.
- New projects will be established, to realize new goals/regulations (on a small scale), afterwards new processes can be implemented/anchored.
- Many topics regarding sustainability have to be implemented proactively. It is not enough to set up a process and not take care of it afterwards. Process management regarding sustainability has to be agile.
- Process Management has to be used, since sustainability has to be realized within the core competence/core processes. Thus it becomes an integral part of the company.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- Supply chain management: starting with the purchase department, sustainability is important, otherwise it will be more and more difficult for the company itself to be sustainable.
- R&D
- Production

*What has already been done to improve sustainability through the integration into Business Process Management?*

- At the top level there is the management/process level, there is a strategic and an operative side.
- A company strategy is developed within a defined cycle. There is a laid down process (development of strategy, strategic planning, operative planning, realization). This results in a goal-pyramid in the form of BSC (finance, customers, products, processes, employees).
- Sustainability is part of the process, but it is not named specifically. There are no separate sustainability goal.
- The basic idea is that the revenue has to be generated sustainable and it has to be found within the processes. (The basic values are laid down within the strategy and are flanked by the business processes) The "how".

*How did the projects of improving Sustainability go?*

- The goal sustainability is proactive. When a goal has been defined, it is examined what business process is relevant and in what form it has to be changed. Do new processes have to be implemented for that? Then a new process has to be defined and established.
- The results of the stakeholder analysis are taken into account.
- From the stakeholder analysis different aspects derive which have to be taken into account in the future. These aspects are written down in a table and they are being monitored. The existing processes are talked through regarding every aspect, to derive actions from them. In the future the actions should lead to a superordinate program and the link between strategic goals and measures should be made clear. This should be visible within the BSC.

*Difficulties*

- The pressure on this topic is still not very high, this makes other projects in this area difficult. Especially the availability of resources is a problem with these projects.
- Visibility, integration, implementation into the strategy
- Inward communication, towards employees and outward, towards stakeholders
- Processes are constantly changing, since new topics keep coming in, which then have to be taken into account – that makes it difficult to define or reach sustainability in a fixed process  
→ Sustainability has to become an integral part of existing processes. So no additional burden is placed on employees.
- Integration of sustainability without raising number/complexity of processes.
- Lengthiness

- Convincing participants

*Success Factors/Requirements*

- No answer

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- A suitable contact increases success of a project/realization of an action in any case – the management has to address the topic the right way.
- Visibility of a project's success – quick wins
- Goals have to be defined clearly and must match the company goals.
- Goals have to be broken down, so everyone is aware of their responsibility.
- Business process management has to be proactive.
- You have to start with one project.
- The topic has to come from the above.
- Manpower

*What would you do different if you had to manage a similar project again?*

- Business processes have to be sustainable; both topics have to be linked.

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- The participants have to be able to follow the project; you have to be able to take employees with you.
- The projects shouldn't tackle everything at once.
- Clear goals

*Is there anything you want to add?*

- The right understanding of leadership has to be present with everyone – the managers have to live, what employees have to realize.
- Not all managers behave in a sustainable manner – they are no role model for their employees, this makes it even harder to turn corporate sustainability into action.
- Software support to generate pressure and transparency (through indicators). This helps with visualization and also the systematic realization.

*Comment*

- I received a very warm welcome.
- The interviewee was very talkative and talked about sustainability with great enthusiasm.
- The interviewee is available for further questions.
- Validation is definitely possible.
- Overall the company is interested in sustainability, but more because of external pressure.
- Especially the management is only partially committed → resource availability is limited.



**Transcript of the Interview with company A, 09.05.2017**

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## Appendix G. Interview Company B

Industrial Sector:	Commercial Vehicle Industry
Employees:	> 290
Interviewee Position:	B1: Product and Marketing Manager B2: Industrial Safety Officer
Interviewee Seniority:	B1: 7 years B2: 5 years
Interview Settings	15.05.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Focus lies on environmental topics and energy guidelines, since a certification is demanded by customers.
- E.g. social sustainability attracts attention

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Motivation comes through the customers, who demand certain certifications and want the company to be active in sustainability.
- The complete product lifecycle is in focus, i.e. suppliers are judged based on their sustainability efforts and certified suppliers are preferred.
- Regard to legal regulations

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- No answer

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- ISO 14001
- ISO 50001
- Energy optimisation
- Waste separation
- No facilities subject to approval
- Reduction of solvent paint

*Social*

- Reduction of accidents
- Health management
- Talent management

*Who is responsible for sustainability on the operative level?*

- Industrial Safety Manager
- Topics have to be controlled top-down.
- Management backs the topic

*What is your responsibility regarding Corporate Sustainability?*

B1:

- Notices actions as employee but does not actively work on it.

B2:

- Responsible for the operative realisation and driving the topic forward.

*To what degree is your Business Process Management already established in your company?*

- Very well established
- Illustration of all business processes

*To what degree are Corporate Sustainability and Business Process Management linked?*

- No answer

*Which processes have the greatest impact on improving Corporate Sustainability?*

- Production
- Purchase
- Development

*What has already been done to improve sustainability through the integration into Business Process Management??*

- No answer

*How did the projects of improving sustainability go?*

- There are different triggers, which lead to actions in this area, e.g. legal regulations, on-site inspection, scan of the complete company (processes, material, etc.).
- These triggers are documented in a tool and actions are derived from that. A responsible person, the specific area, a fixed deadline, and priority is assigned to every action. It is furthermore extensively documented how the goal should be reached and e.g. how it was reached.
- Simple actions are realised directly.
- All actions that are documented are monitored, also by the management. Monitoring takes place weekly. This creates pressure.
- All actions have to be tracked and realised successfully.
- This process takes place in every team new aspects are implemented.
- Subsequently the relevant processes are changed, adapted or updated, e.g. new drawings, withdrawal of substances, etc.
- There is also a fixed process how new legal regulations have to be incorporated and realised.

*Difficulties*

- Costs that arise through such actions/projects.
- Guaranteeing the same quality, if e.g. certain substances cannot be used or have to be replaced.
- Persuasive efforts and communication towards employees, everyone has to cooperate.

*Success Factors/Requirements*

- No answer

*Is there anything you would have liked to know beforehand?*

- The sustainability manager is the one who drives a topic forward and who needs a strong assertiveness.

*What would have been helpful, under what circumstances would the project have been more successful?*

- Efficiency and effectiveness; topics keep coming up; if they are not extensively documented you have to restart over and over – critical for the existing time budget.
- Support within communication, especially internally so all employees cooperate and incorporate it into their style of work.
- Manpower
- The agility of the topic has to be taken into account, because sustainability is a topic that changes constantly.

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- Efficiency and effectivity

*Is there anything you want to add?*

- No answer

*Comment*

- Conference room is next to the production hall → recordings are partially very difficult to understand.
- Overall the interview went fluently.
- Interviewees are available for further questions.
- Company doesn't own true Business process management → works with an ERP-System.
- Changes benefitting sustainability are transferred into the processes in a limited fashion.
- Focus lies mainly on ecological aspects → ISO 14001 certificate.
- Very committed and intrinsically driven.

**Transcript of the Interview with company B, 15.05.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix H. Interview Company C

Industrial Sector:	Public Sector
Employees:	> 9,000
Interviewee Position:	C1: Logistic Manager C2: Quality Manager C3: Quality Manager
Interviewee Seniority:	C1: 34 years C2: 33 years C3: 18 years
Interview Settings	C1: 30.05.2017; on-site C2 and C3: 19.06.2017; on-site

*How is Corporate Sustainability defined in your company?*

C2 & C3

- There is no definition for sustainability which is known in the company.
- During the interview it became apparent that the interviewees do think as well in three sustainability pillars. The focus lies on economical sustainability. Especially sustainable investments are of importance to them.
- Social sustainability is found in Human resources.

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

C1

- Sustainability is part of everything, even though topics are driven by customer needs rather than sustainability.
- It is our goal to support customers and satisfy their needs as fast as possible for a reasonable price and an acceptable environmental burden.
- Sustainability should be visible in the way employees act; it has become part of daily consciousness, although there are some exemptions.
- It is about resources and the waste of them.
- However all activities in this sector are driven economically – sustainability opens up new markets, fields of business and it is part of business.
- There are descriptions of processes that demand and promote this behaviour.

C2 & C3

- Sustainability is primarily demanded from the owners and refers in particular to the objective of sustainable management.
- The objective is also set in the company's purpose/intention.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

C1:

- Sustainability goals are defined within the company's goals.
- It is one perspective on the target agreement. Every employee gets separate sustainability goals. If they are exceeded a bonus is given. This promotes the employees commitment in this area. Sustainability goals for every employee are one way of operationalization.
- No product should be offered, which isn't strongly influenced by sustainability.

C2 & C3

- Objectives in the field of sustainability focus on the protection of the environment.
- As an example, they want to completely switch to alternative energy till 2024.

- Objectives are always specified in the company's strategy and then spread into the lower divisions.

*What has already been done to improve sustainability?*

*Economical*

C1

- Breaking even is the number one priority
- Sustainability helps with that

*Ecological*

C1

- Saving energy
- Sparing resources
- Reducing waste

*Social*

C1

- Health management
- Work-life-balance
- Compatibility of family and job
- Training program
- Employee survey

*Who is responsible for sustainability on the operative level?*

C2 & C3

- There are no explicit named responsible/authorities for sustainability.

*What is your responsibility regarding Corporate Sustainability?*

C1

- Especially responsibility in the area of process management

C2

- Maintenance of the management system and computer system
- Auditor
- Taking care of departments

C3

- Taking care of managements systems
- Map processes
- Go through audits
- Interface with sustainability through environmental management

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

C1

- Sustainability is only possible if it is closely linked to Business process management.
- When new processes are established, sustainability and efficiency are taken into account from the beginning, to spare resources, save staff, save work hours, be faster.
- Processes are audited regarding this, both internally and externally this is checked in periodic cycles.

C3

- The management system is important for the long-term character of sustainability.

*Which processes have the greatest impact on improving Corporate Sustainability?*

C1

- Purchase

C3

- Engineering, sales

*What has already been done to improve sustainability through the integration into Business Process Management?*

C2 & C3

- To monitor the objectives, set in the company's strategy, they are displayed in the processes in due course.
- This approach is in force for all objectives, not only in the area of sustainability.
- The same framework applies to all processes.
- Processes don't get evaluated nor marked due to sustainability. Every employee has to assess the process and its relation or importance to sustainability.
- Sustainability doesn't matter in process management nor in process development. But the awareness for it exists.

*How did the projects of improving sustainability go?*

C2 & C3

- The interviewees weren't and aren't responsible and therefore cannot concretely estimate the difficulties or challenges.
- Employees don't get trainings or additional information on sustainability.

*Difficulties*

C1

- The biggest downside is, that sustainability is not automatically taken into account in projects. It is not part of the project structure plans, so the overall view is lost out of sight.
- The responsible ones have to take care that sustainability finds attention despite cost and time pressure.
- It has to be made sure that the topics are strictly adhered to, which is not always the case.
- Convincing employees that this is the right way and that they have to stick to the written down processes – that is the only way of reaching sustainability.

*Success Factors/Requirements*

C2 & C3

- Support through the management board
- Long-term monitoring of the risk factors
- Introduction to the processes

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

C1

- A system has to be established so that sustainability is always taken into account
- Better ways of communication
- A better overview over the results within the company – complete overview on the company.
- Technical support

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

C2 & C3

- Compare to quality management
- One possible procedure would be:
  1. Scan the procedural landscape



2. Mark sustainable processes

3. Implement new goals

- One could add a tab for "sustainability issues" to every process.
- For all the above an evaluation scheme is needed, to know how sustainability is found "How do I find it in processes?".
- An evaluation matrix for processes
- One must commit to a process map
- The challenge with this is to retain the legibility of processes with rising complexity.
- Sustainability has to be included in the current/present system.

*Is there anything you want to add?*

C1

- The broader and bigger the company, the more difficult the integration and establishment of sustainability is. Many try to reach their goals and neglect the goals of sustainability. To secure sustainability a separate division and staff is necessary.

C3

- You have look beside the processes, take the surroundings and extraneous factors into account, to cover all necessities.
- A norm for sustainability would be helpful.

*Comment*

C1

- The interviewee's competences are foremost in logistics and he especially understand the process.
- He was very open and disclosed a lot of information including difficulties.
- The company can hardly be compared to others, because sustainability is not a goal, but part of the business. It is only partially a producing company.

C2 & C3

- Information primarily from a process expert's point of view. Interviewees are not directly in touch with sustainability. Sustainability is not very well spread within the company respectively. That made it hard for them to understand what is meant by corporate sustainability.
- Nonetheless extensive information/answers, with given boundaries.
- Validation might be possible from the process' point of view.
- Sustainability is of high significance, as an integral part.

**Transcript of the Interview with company C Person 1, 30.05.2017**

*Transcript has been removed due to Copyright restrictions.*

**Transcript of the interview with company C person 2, person 3, 19.06.2017**

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## Appendix I. Interview Company D

Industrial Sector:	Building Sector
Employees:	> 4,600
Interviewee Position:	Manager Sustainability
Interviewee Seniority:	11 years
Interview Settings	01.06.2017; videoconference

*How is Corporate Sustainability defined in your company?*

- TBL

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Sustainability is becoming more relevant for every company.
- In this company the motivation came from a growing number of customer requests and demands.
- The company wants to keep maintaining its image through that.
- An ISO-Certification was aimed at (received 2014 for the first time)
- Sustainability is an attitude in this company.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Among others, quantification of the carbon footprint – the company has developed its own certifiable standard.  
→ The numbers should be improved year by year.
- Member of the 2°Foundation – support of keeping the global warming below 2°C.  
→ Influencing the development and guidelines on a political level.
- Continuous development – what are we doing, where are we standing, how can we get better.

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- A division is responsible for this topic, but it is always aimed at bringing the standard into the line function very quickly
- Persons responsible are named to drive the topic forward, concerning a certain aspect

*What is your responsibility regarding Corporate Sustainability?*

- Part of the division

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

- There is certainly a link between sustainability and Business Process Management.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- Customer demands
- Adherence to laws
- Compliance
- Basically this depends on the set goal. If you know that, there are areas that can do more to reach the goal than others

*What has already been done to improve sustainability through the integration into Business Process Management?*

- Sustainability defines the fields → they determine the processes or have to be anchored within the processes respectively → are audited/certified.

*How did the projects of improving sustainability go?*

- Delta-analysis with the help of norms
- Pyramid model on which top level one has to consider what one's own vision of sustainability is.
- From that a business model should derive ideally → it should create added value.
- On the second level one has to think of a strategy. (How do I get there, what is my product/what is my field of activity, who are my stakeholders and what are their demands towards me?)
- Part of this is a stakeholder analysis from which different fields of activity (products, environment, employees, society, supply chain) derive.
- Materiality analysis (Why do we practice sustainability? What do we want to reach? On what adjustments should we work there?)
- From these fields of activity the areas within the company which one has to turn to derive (regarding the product to product management, technical department, construction department; regarding employees to HR)
- From these fields of activity one can build a road map (plan of action – who, what, when).
- The road map represents the pyramid's third level and lies on the operational level.
- All the actions are carried out within the project and are handed over to the line function/processes afterwards.

*Difficulties*

- Persuasive efforts, when a project goes into the process → these actions always mean additional effort for the participants. (i.e. cradle-to-cradle → the construction department has to rethink from now on – additional effort through intelligent product development)  
→ Persuasion can be reached through small steps and pilot projects, with which one can create quick wins. Quick wins lead to acceptance and motivation, also for the next more complex questions.  
→ A process can only be defined after the pilot.
- Communication
- Keeping balance between effort and benefit – securing economic sustainability.
- Conformity with law  
→ Lack of resources or lack of money respectively.

*Success Factors/Requirements*

- Anchoring within the organisation and within the employees' conscience
- 100% commitment of the management/vision → attitude → with everything we do, sustainability is part of it → sustainability has to become a hygiene factor.
- Sustainability takes a lot of time, that one has to take → trends must be recognised early, so you have time to integrate them within the organisation/processes and to internalise it.
- Improving the penetration rate within the company.

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- Every year: What are we doing? Does it work? Does it add additional value to the company? → However with an integrative approach it is probably not possible to draw a fixed process.
- IP/PDCA as a control loop to take a closer look at sustainability – a control loop that repeatedly (the cycles become shorter and shorter) asks: Have we looked at the right topics regarding sustainability?
- (Basically this is like risk management – it is looked at on a yearly basis, in a certain area, whether we risk missing something.)
  - Tension between sustainability and fixed processes: someone has to pull out what needs to be standardised for the sake of the process (i.e. concrete product requirements, ISO certification, product certification) and leave everything else blank, when in doubt. One has to be able to compare, whether one is still doing the right thing. If too much is defined within fixed processes, the whole thing becomes cumbersome.
  - Sustainability process – each area names a sustainability expert and a division has the responsibility and the competence and provides guidelines.
  - It is about developing a system, how to stay updated in the area of sustainability.
- ISO demands less and less processes that have to be defined.

*Is there anything you want to add?*

- Sustainability as a new business area, because it is a relatively new trend → some time it will become a hygiene factor.
- Description of sustainability with the help of the KANO model – sustainability as a performance characteristic of a product.
  - Right now it is an admired feature, companies have to think now what they can do, in the sense of sustainability, as a unique selling point. This can be defined as a field of action, worked on with the help of pilot projects, and then implemented as a standard within the processes. Of course what once was new has to be kept as a standard.
  - Sustainability can be understood as a new business area, not as a tangible product, but as a sentimental value, which can and has to be redefined over and over again.
- Putting sustainability in the centre of attention and deriving how that can be found within a business process model today. Sustainability is a new business area, from which opportunities for the company can be generated.
- What influence can sustainability have on Business Process Management? With that it is not about repeatability.

*Comment*

- The interview was very good. The interviewee has a deep understanding of both fields of research.
- He was very open and very helpful.
- He was very interested in the results and is definitely available for validation.
- He comes from quality management himself.
- The company has great intrinsic interest in sustainability and is highly engaged.
- It definitely leads the way.

**Transcript of the interview with company D, 01.06.2017**

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## Appendix J. Interview Company E

Industrial Sector:	Aviation Industry
Employees:	> 9,000
Interviewee Position:	Corporate Communication and Public Affairs
Interviewee Seniority:	18 years
Interview Settings	07.06.2017; by phone

*How is Corporate Sustainability defined in your company?*

- Responsibility for products and processes, employees, customers, partners, environment and society.
- Economic sustainability secures the company's success and future sustainability through long term competitiveness, development of new business areas, risk minimization.
- Product responsibility lies at the core.

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Development of environmentally friendly products, because they are economically interesting → protection of resources to live constantly on this planet with its growing population.
- Laws
- Stakeholder questions

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Materiality matrix – relevance for the stakeholders to relevance for the company.
- Environmentally friendly products.
- Preservation of economic performance and being ecological and social responsible

*What has already been done to improve sustainability?*

- Sustainability is part of the processes already, but because of the special demand of information and reporting, the information is taken out of the processes and put together for publishing

*Economical*

- No answer

*Ecological*

- EMAS certification

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- The actual management takes place within the divisions. The ones responsible are named because of their competence, and most of the time they also have a great network
- Sustainability is organizationally anchored within the company

*What is your responsibility regarding Corporate Sustainability?*

- Sustainability reports
- Management unit, sustainability management – platform for collecting sustainability indicators, generating reports, organizing workshops for strategic development, stakeholder workshops, benchmark, give impulses and the divisions plan the next steps for the sustainability management together



*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

- No answer

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- Sustainability is already part of the business and the existing processes.
- New topics, which become part of the materiality matrix derive from stakeholder surveys, the divisions, company goals and laws.
- Deriving a strategy and planning the upcoming actions. Twice a year projects are planned in the course of strategy workshops.
- Afterwards the actions are exclusively planned by the divisions (interviewee is not part of this).

*Difficulties*

- Handling multiple worldwide sites
- Not all projects are centrally supervised or reported to the central department.
- Sustainability runs parallel on many sites and the central department is not always involved, but has to gain information afterwards.
- The organisational positioning has to be more centralized, to promote the development of general strategies.
- Employees who are responsible for sustainability are not officially appointed for that cause.
- Sustainability should automatically be part of the goals.
- Getting information from the stakeholders.

*Success Factors/Requirements*

- No answer

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- Appointing a sustainability manager.

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

- No answer

*Comment*

- The Interviewee is an expert for the sustainability reporting. Big parts of the interview were about the reporting, the problems with different reports that are necessary, and the gathering of information.
- The company does not question its behaviour critically and is certain to be very sustainable.

- It is really only about reporting, other problems regarding sustainability are not present from the interviewees point of view.  
→ Overall the interview is hardly helpful. Apart from the fact, that there are companies that have not recognized the problem itself.

**Transcript of the interview with company E, 07.06.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix K. Interview Company F

Industrial Sector:	Chemicals Industry
Employees:	> 52,000
Interviewee Position:	Executive Safety Engineer and Environmental Officer
Interviewee Seniority:	25 years
Interview Settings	08.06.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Safety, health, environment and quality.

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- It is of great importance to the board and the management.
- The company's image is supposed to be secured by that and it is a goal to not stand out negatively.
- It is the company's own expectation.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Compliance with all laws – in the area of security the company achieves a lot more than it would have.
- All goals have to be in balance with the economic goals.

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- There is a global division for sustainability that passes guidelines on to the local divisions. On a local level there is a central division that takes care of realising the sustainability goals and requirements

*What is your responsibility regarding Corporate Sustainability?*

- Responsible on local level for safety and environment

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

- Both topics have to be intertwined. A company has to integrate these topics in every business process, especially protection of the environment and safety.
- Employees should consider these topics in their work.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- Anchoring sustainability within the strategy
- Definition of goals on a global level – passing on and defining goals on a local level. This is where goals are implemented on an operational level.
- Development of a plan of action – technical, organisational and personal actions.
- As much as possible the goals are backed with indicators.
- Reaching a goal is monitored and there is a worldwide audit system specific to the company.
- Reporting takes place up to the top level.

*Difficulties*

- Communication and the resulting understanding and identification with the goals.
- Understanding between those who develop guidelines and those who realise the implementations.
- Motivation
- Resources
- Conflicts based on different guidelines.
- Sustainability as an additional task
- The realisation on the operative level is not running smoothly all the time. This is where it is decided whether the goal is reached or not. Therefore the specific resources have to be available as well as the willingness to reach it.

*Success Factors/Requirements*

- Commitment of the management – visible leadership
- Enough resources – nevertheless everything you do has to be weighed economically.
- Commitment of employees

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- The divisions on the operative level should always be present when guidelines are made on a global level or programmes are developed.

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

- No answer

*Comment*

- The interview was very pleasant.
- The interviewee views the term sustainability as questionable respectively partially inadequate → it was more about subtopics of sustainability.
- The interviewee is mostly focused on legal aspects as a safety engineer.
- The interviewee does not have an overview of the general challenges concerning sustainability. The procedures/programmes are mostly worked out by the superior department and the interviewee has to carry them out.
- In the interviewee's opinion, the company does not have any difficulties regarding sustainability whatsoever.

**Transcript of the interview with company F, 08.06.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix L. Interview Company G

Industrial Sector:	Automobile Industry
Employees:	> 12,000
Interviewee Position:	G1: Director of Global Product Lifecycle Management G2: Energy Officer
Interviewee Seniority:	G1: 3 years G2: 5 years
Interview Settings	16.06.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Sustainability is mostly defined through the topics environment and quality; but also the social component of sustainability is taken into account in many single initiatives and processes.
- Sustainability is being remodelled at this time. Quality and environment are becoming sustainability policy.
- "Sustainability policy now defines what is meant in terms of quality, the environment, energy, health and safety, security and information technology."

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

G1

- First of all it is about strategy, values and brand image.
- "If you go further down the line, sustainability also plays a big roll, in respect to ecology, protection of the environment."
- "These programmes make it visible in an orderly manner and visualise it in a structured manner."
- The customer demands sustainability, at least certain certificates. That creates a pressure to act and communicate it. However "it lies in each company's own interest to make sustainability public."

G2

- Sustainability has been around longer, but now this topic is becoming of greater importance.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

G2

- There is no superior goal for sustainability. "In each department operative and strategic goals are separately defined, some every year, some strategic goals last longer. But there is no sustainability goal."

*What has already been done to improve sustainability?*

G1

- A new programme for sustainability was introduced, to set a strategic direction and to communicate that direction. Within the programme sustainability was defined.
- Sustainability was integrated in to a maxim for acting, to align all actions with that. Thus the employees are being motivated and encouraged to get involved. Processes, activities and trends are also subject to that maxim for acting. It also makes an evaluation of different projects possible.

G2

- The programme promotes networking and communication within the company, across different departments.
- "And how, where can I get an overall improvement"

*Economical*

- No answer

*Ecological*

G1

- Energy saving measures
- Use of compatible material

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

G2

- There is responsible staff for each part of sustainability

*What is your responsibility regarding Corporate Sustainability?*

G1

- Not responsible operatively. Is only connected to the topic through supervising bachelor/master theses

G2

- Energy representative and is thus directly dealing with the topic (in parts)

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

G1

- In the analysis of the process description you find multiple hints, of a connection to the different dimensions of sustainability. Mostly connection to environmental protection.
- The trigger for integration where legal demands, customer expectations, but also suppliers' expectations.
- Nevertheless, sustainability in Business Process Management is not recognizable at first glance and it is not emphasized. There is no outward labelling.

G2

- A lot of measures are already being put into practice on the smallest level. However it is partially difficult to integrate them into the processes, "because a lot is happening on a small level and there are so many and diverse contact persons."
- It also makes it difficult to connect the topics, since there is no superordinate strategy. One is now working on such a strategy.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

G2

- Goals for a specific department are set twice a year. Then they are broken down into site-specific operative goals.
- There is an exchange between departments.
- Yearly review of the measures
- "So the goals are actually broken down, relatively specific, and once such a goal exists, everyone knows what he/she has to do."
- "So if it is a set goal, it is not really difficult on the operative level."



### *Difficulties*

G1

- Bad communication within the company. It is not clear to many employees that the company is engaged in this area. → A lot of potential in the use and communication towards stakeholders (the company is not subject to a reporting obligation).
- Consideration of all dimensions concerning measures and definition of sustainability.

G2

- Communication
- Networking
- No superordinate department that coordinates everything. Hence, every department does its own thing.
- Measures are not bundled.

### *Success Factors/Requirements*

G1

- The company obviously has to back it.
- Active communication across all hierarchy levels. Binding and credible.

G2

- The newly set programme including the maxim of acting helps with meeting difficulties.

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

G2

- "It works great within the energy sector, extraordinary."
- "Nothing goes wrong there."

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

G1

- This issue has to become more present in employees' heads, an indicator would be helpful, that works similar to a share price for sustainability.

G2

- It is fundamentally very difficult to define sustainability. Such a definition would make things much clearer.

### *Comment*

- The interviewees do have a connection with sustainability, however there is no connection with Business Process Management or the processes.  
There was supposed to be an interview with the staff responsible for the processes, but this come into being despite intensive effort.
- The interview was very pleasant interviewees were very helpful.
- According to the interviewees the company does not have any problems with sustainability.
- The company is already sustainable.
- There is no real concept for operationalisation.

**Transcript of the interview with company G, 16.06.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix M. Interview Company H

Industrial Sector:	Packaging Industry
Employees:	> 24,000
Interviewee Position:	Manager Environment
Interviewee Seniority:	15 years
Interview Settings	19.06.2017; by phone

*How is Corporate Sustainability defined in your company?*

- TBL

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- The subject of sustainability has already been incorporated in the company's foundation.
- It is deeply embedded in the company and its corporate philosophy.
- Driving forces are environmental objectives.
- Through sustainability objectives new business areas are developed. Sustainability is still the strongest motivation behind new developments.
- Sustainable thinking leads to the company's objectives – economic success is part of sustainability. Both must be in the same perspective.
- "If you derive the company's objectives from the sustainability concept to really try to make the world a better place."

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- The company's objectives are based in the SDGs, how someone can influence them positively.
- Quantifiable objectives mostly lie in the environment sector. In the area of social sustainability especially qualitative objectives are used. But someone has to be cautious with all key figures, because they can have negative effects on an objective, like reducing sick days.

*What has already been done to improve sustainability?*

- In recent years the company has developed significantly, first and foremost through stronger competition and risen interest from stakeholders (age of accountability through social media) – the pressure to take action rose
- The company also tries to direct legal developments into this direction. To support the activities of the whole branch
- Speed and transparency are big in those subjects

*Economical*

- No answer

*Ecological*

- Recycling goals, for example less than 3% waste, figures are monitored continuously on screens and communicated in the plants

*Social*

- Food/nutrition projects in developing countries
- Supplying schools

*Who is responsible for sustainability on the operative level?*

- No sustainability manager so far
- The responsibility is divided between the environment and communications department

*What is your responsibility regarding Corporate Sustainability?*

- Responsible for the topics in the environmental area

*To what degree is your Business Process Management already established in your company?*

- Very well established

*To what degree are Corporate Sustainability and Business Process Management linked?*

- No answer

*Which processes have the greatest impact on improving Corporate Sustainability?*

- Sales, Product development
- Life cycle assessment department

*What has already been done to improve sustainability through the integration into Business Process Management?*

- Project to switch the product to renewable resources.
- The subjects induced by the leadership team and forwarded to the affected departments.
- Product development is researching for material to use. Potential solutions must go through the complete product lifecycle, to ensure the reasonability regarding life cycle assessment. Recycling is a part of this.
- Developments also have to be economically efficient.
- Final is the transition of the plants.
- Objectives are brought to the responsible departments and are also implemented by them. But in the transition, the sustainability representative is always additionally involved.
- Objectives are written/set in the Balanced Scorecard of the company.

*How did the projects of improving sustainability go?*

- The topic is coordinated centrally, this simplifies the Top-Down-realisation/implementation. But takes the flexibility from the individual sites.
- Responsibilities are specified

*Difficulties*

- Internalization of the topic in each employee.
- Availability/Approval of necessary budgets

*Success Factors/Requirements*

- Communication
- Training/Education of the employees
- Availability of budget

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- Sustainability management
- Processes and standards, which are continuously tracked through audits.
- Clear definitions of goals, backed with key figures (difficult for social aspects).
- Difficulty: a model, which fits all.
- The model has to include/replicate/simulate the diversity of sustainability.
- An approved label for sustainability would be helpful. On one hand to guarantee a certain standard and on the other to ensure comparability. Possibly an industry-specific label.

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

- No answer

*Comment*

- The interview has a broad knowledge in the field of sustainability.
- Very informative interview
- Further documents were provided.
- There was already an interview about sustainability with this interviewee, in the context of another study.
- The company continues to develop strongly in the area of sustainability and is very committed. Nevertheless, there are still difficulties with implementation.

**Transcript of the interview with company H, 19.06.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix N. Interview Company I

Industrial Sector:	Defence Industry
Employees:	> 1,300
Interviewee Position:	Head of Business System Management
Interviewee Seniority:	4 years
Interview Settings	22.06.2017; on-site
An audio recording was not permitted by the company, as a result no transcript of the interview is available.	

*How is Corporate Sustainability defined in your company?*

- TBL

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Energy saving for cost reasons. → The goal of sustainability is driven mainly by economic aspects and legal requirements.
- What makes economic sense as a central issue in the field of sustainability?
- Customers have no demand, so the company has no added value through sustainability (in the economic sense).
- Reporting because of the regulatory requirements.
- The public is not a driving force in the context of sustainability.  
→ However, the immediate environment is important as a stakeholder and leads to additional measures.  
→ Responsible use of the environment, also ecological aspects play a role.
- Sustainability is always a question of money.
- Vision: Sustainable value creation leads to sustainable customer loyalty.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Only measurements in the area of social sustainability are taken that go beyond the regulatory requirements.
- Regulatory requirements are implemented and also audited by internal audits, e.g. waste disposal, energy audit, recycling.

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- Attract and retain employees through additional services, e.g. pleasant workplace, fitness centre, good working environment
- Employee survey by an external company → results are used to derive measures from it
- Training (not only determined by the requirements at the workplace, also private interests can be pursued), occupational pension, health care
- Protection of labour (of course – compliance with all legal requirements)

*Who is responsible for sustainability on the operative level?*

- Nobody

*What is your responsibility regarding Corporate Sustainability?*

- Responsible for the business processes, not for sustainability

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

- In all processes the PDCA is being installed in order to constantly improve and become sustainable.
- The PDCA represents the link between sustainability and the processes.
- Sustainability in the sense of conservation of the company as an internal drive of the company.
- Business Process Management should be used for sustainability, e.g. during long development cycles, everything is documented, to be able to learn from it. Otherwise, the long development cycles make a lessons learned otherwise impossible, even if the documentation requires a lot of work.

Application of the PDCA:

- The focus should be on the planning, about 80%. However this is not possible due to high time pressure, which is why the phase is usually shortened.
- Employees have difficulties to recognize the difference between the phases C and A.
- In order that the PDCA is used correctly, the process is trained intensively and is also partly over the processes themselves (in the training).
- The PDCA is part of the project control.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- 5-year planning to fix the necessary frame conditions, e.g. employee planning to ensure continuous employee utilization.
- Audits to identify problems
- Measures are initiated via the process owner and implemented by the process manager.
- If several processes are affected it becomes an organizational project, incl. stakeholder analysis, risk analysis and interface analysis.
- Fit for Future projects are special projects that are often related to the goals of sustainability, but not exclusively.
- Project management is allowed to report directly to the management twice a year.
- Economic goals are set and subsequently reviewed.
- The management provides budget for these projects.
- Such projects also have a higher visibility in the company and thus offer the project manager the opportunity for further development.
- Greater support/commitment/support from the management
- Offer more options
- These projects are also PDCA shaped, like other projects.
- These projects are also taken over by the participants as an additional task.
- IDEA – employees can place ideas/suggestions for improvement and they will also be rewarded in case of economic success. In any case, the respectful handling of all proposals is in the foreground.

*How did the projects of improving sustainability go?*

- No answer

*Difficulties*

- To develop measurable sustainability metrics  
→ There are key figures for all processes – upper process level.



→ Among these are also sustainability figures, but these are not highlights as such because the motivation is different. E.g. the turnover rate is used as a measure of social sustainability.

- All key figures have warning limits in order to be able to take measures in time.
- What are good metrics? And how are the key figures to be interpreted?
- The automated collection of key figures increase their quality → the support of the IT systems helps.

#### *Success Factors/Requirements*

- No answer

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

- More dynamic must be in the processes.
- There are stringent processes that always have to be the same.
- There are processes in which the competence of the employee must be in focus, so that he/she can respond to disturbing influences. This cannot be considered in rigid processes. There must be more flexibility in such processes.
- Development has the specification as a driver. → If sustainability is not integrated in the process and in the specification, it will not be considered by the development. However, it is always difficult to bring product requirements and sustainability requirements together. Laws help to counter such difficulties.
- In order to maintain competitiveness, the requirements should be internationally the same.

#### *Comment*

- It was not allowed to record the interview. There is only a transcript of the interview.
- The interview has a broad knowledge in the area of Business Process Management.
- In the defence industry sustainability plays a subordinated role in terms of the TBL, which is why the interviewee was unable to answer all the questions.
- Sustainability is not important, the company moves in the legal framework.
- The interview probably served the purpose of showing me the company and recruiting me.

## Appendix O. Interview Company J

Industrial Sector:	Pharmaceutical Industry
Employees:	> 94,000
Interviewee Position:	J1: Head of Security, Health, Environment and Quality Management J2: Manager Environment
Interviewee Seniority:	J1: 19 years J2: 30 years
Interview Settings	29.06.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Sustainability is also defined within 3 pillars.
- The company uses the 17 objectives of the UN as a base for their own corporate objectives.
- "To ensure a healthy life for all humans and support their well-being."

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Sustainability is an integral part of businesses and the culture of the company. It is triggered through the owners of the company.
- Sustainability should become a matter of course in the company. "It is the purpose of our business."
- Intrinsic motivation for sustainability. All measures/actions are supported by the company's managers and resources are provided accordingly.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Goal: to establish sustainable growth and value adding.
- Responsible management with good corporate governance
- Building high-grade, attractive jobs/workplaces.
- Ensure access to our products for the ones, who need them.
- Appreciate the employees and guarantee for their safety.
- Reduce the ecological impacts through our products and operations.
- Support of local projects and encourage innovations in science and arts.
- There are goals for all areas, those are quantified if possible and are controlled with different tools and audits.
- Corporate objectives are being made more precisely, up to personal goals. Those are combined with consequences if not adhered.
- The leader of sustainability has the task to specify the objectives for the particular departments. But the objectives have to be challenging. It's not the intention to stop when goals are fulfilled.
- All objectives have to be in balance with the economy.
- The company wants to be a pioneer.

*What has already been done to improve sustainability?*

- Reduce resources, energy, water, waste
- Avoid CFC-including refrigerant
- 100% green energy, etc.

*Economical*

- No answer

### *Ecological*

- No answer

### *Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- No answer

*What is your responsibility regarding Corporate Sustainability?*

J1

- Responsible for the whole package, safety, environmental protection, security, quality management and qualification, etc.

J2

- Responsible for parts, environmental protection

*To what degree is your Business Process Management already established in your company?*

- To a very high degree

*To what degree are Corporate Sustainability and Business Process Management linked?*

- Settings for the topic of sustainability are included in the processes, they are must-have requirements.
- The employees are confronted with them and there is no way around them, they have to bear them in mind.
- Both topics have to go hand in hand.
- Furthermore there are processes to incorporate sustainability in certain areas, for example product development – observing the whole product lifecycle.

*Which processes have the greatest impact on improving Corporate Sustainability?*

J1

- Production, development, purchase

*What has already been done to improve sustainability through the integration into Business Process Management?*

- Establishing of checklists in the processes.
- Defining indicators, which can be audited.
- Detailed documentation, for example accessible templates
- Settings for the employees

*How did the projects of improving sustainability go?*

- No real problems. In certain situations employees had to be convinced of the accuracy of the actions. As management supports the measurements, for example through release of resources, the employees could be taken along.
- The company has been active in the area of sustainability for several years, therefore the mind-set/spirit could be spread and nearly all can act in concert.

### *Difficulties*

- No answer

*Success Factors/Requirements*

J1

- Commitment from the top management
- Clear statement of the management
- Necessary resources have to be provided.
- The company's culture has to fit.
- Ideas are shared over all sites and externally.

J2

- Employees have to be convinced – a lot of communication.

- Employees need positive feedback.
- Employees are allowed to make suggestions/introduce objectives, those are partly adopted, published and audited. Therefore the pressure rises and topics are moved forward more quickly/better promoted.

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- A structured systematic
- Employees have to have certain tools.
- Employees have to be confronted every time.

*Is there anything you want to add?*

J1

- The company's culture should be the first thing in mind.

*Comment*

- The two respondents are experts in the field of sustainability and both have a responsibility in this area.
- Many measures were described in great detail. The connection between sustainability and the Business Process Management has been confirmed, but an implementation or integration of sustainability in the Business Process Management could not be described.
- Much advertising for the company and its sustainability effort (legitimately).
- The company is very active in the area of sustainability and absolutely wants to play a pioneering role, which it does.
- Nevertheless, the operationalization of sustainability is difficult to describe and is decided on a case-by-case basis.
- The company has no problems with the implementation of measures.

**Transcript of the interview with company J, 29.06.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix P. Interview Company K

Industrial Sector:	Machine Building Industry
Employees:	> 2,000
Interviewee Position:	K1: Vice President SCM K2: Logisitc Planner, Energy Manager
Interviewee Seniority:	K1: 7 years K2: 4 years
Interview Settings	24.07.2017; on-site

*How is Corporate Sustainability defined in your company?*

- Basically TBL.
- The main focus lies on ecology, economy obviously, but not on social issues.

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Sustainability objectives are written in the strategy (ecological objectives).
- Till now there are no external drivers – the activities are driven by the social political responsibility and the preparation for the future.
- Many objectives are automatically connected and serve as economic and ecological goal.
- Organizational anchoring: concrete objectives, responsible, share/stock program, training for employees.
- Sustainability is a main focus point and has a high significance in the company.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- No answer

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

K2

- LED-lightning
- CO2 footprint- 60% reduction per provided machine
- Local buying

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- No answer

*What is your responsibility regarding Corporate Sustainability?*

- No answer

*To what degree is your Business Process Management already established in your company?*

K1

- Total self-image in the company

*To what degree are Corporate Sustainability and Business Process Management linked?*

- Difficulties to show the relation, Business Process Management is part of the company and not a separated process. "It is originally rooted in our company."
- In the company everything goes through Business Process Management, hence sustainability as well.
- Every employee has to be reached.
- To start process management should be used as a lever.

*Which processes have the greatest impact on improving Corporate Sustainability?*

K2

- Transport ways

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- The company was being examined along the whole supply chain and searched for the biggest levers.
- Along the classic SCORE-orientation, to add all consumption in a value stream oriented way.
- Connection of Lean and Green – the wastes were complemented with the green wastes.
- With this theoretical approach the road map was built, five main clusters – the most important ones: electric consumption and distances.
- The levers have been prioritized.
- For every lever the point of approach and implementation has been identified/determined.
- The most important at the start: creation of transparency, Compilation of KPIs.
- KPIs are reported monthly.
- Bring employees in focus, so they are actively involved in the implementation. The ideas and implementation are generated by employees.

*Difficulties*

K1

- Employees are anxious and cautious – change management is necessary.
- "With big topics change management is the solution."

K2

- Employees need motivation and have to find access to the topic.

*Success Factors/Requirements*

K1

- One has to look at the whole concept and context to act wisely.
- Long-term nature
- Intensive communication – preparation, briefing of the management.
- Clear rules and responsibilities
- Give the topic high significance.
- Integration of the topic in the existing strategy, it is not supposed to be separate. Sustainability objectives must be part of the strategy-picture and the metric of the overall objectives have to include sustainability measures.

K2

- The broad employee involvement
- Employees have to be able to connect/match the topic with the right interfaces, to whom they need to report, where does it lead to – create transparency.
- Go step by step

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

K1

- The topic has to be in the focus of the management early on, so it can be classified in accordance on its significance.

K2

- The company wouldn't change its methods for the next project.
- "Means the methodical basics"

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

K1

- The method has to be adapted to the company and its specifics.

*Is there anything you want to add?*

K1

- A change project

*Comment*

- Very open interview
- Respondents have knowledge in both areas.
- The company is very Lean and Business Process Management oriented, which is why it does not question the connection between sustainability and Business Process Management. The integration is self-evident.
- Recently the company began to examine the connection between the value chain and sustainability measures. How can one derived from the other?
- Working hard to become sustainable.



**Transcript of the interview with company K, 24.07.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix Q. Interview Company L

Industrial Sector:	Chemicals Industry
Employees:	> 17,000
Interviewee Position:	Manager Sustainability
Interviewee Seniority:	23 years
Interview Settings	28.07.2017; by phone

*How is Corporate Sustainability defined in your company?*

- TBL
  - SDGs
  - Sustainability applies in terms on how the profit is earned and not on how the profit is used.
- To what degree is sustainability a relevant topic in your company? What is your motivation?*

- The topic has been relevant in the industry for years. Therefore the branch has to take its responsibility.
- Sustainability is also an economic force/driver.
- The company has a business case and provides an important and valuable contribution for sustainable development.
- Sustainability is very strongly integrated in the business model – "We strongly believe, that our products provide an essential contribution to innovation/progress and sustainable development."
- "We are also convinced that the only way for continuously successful management is to seriously focus on the environment and society at the same time.
- Sustainability in the company is an intrinsic motivation based on responsibility, possibilities but also risks.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- A large number of goals are linked to sustainability – short-term and long-term. The goals are no longer divided into the three columns of TBL, but in financial and non-financial goals.
- All goals are communicated outwards.
- All goals are generated from goal-setting-meetings in annual cycles. These goals are spread throughout the whole enterprise. Furthermore these goals are included in the operative committees to take the particularities into account. The operative committees then determine their goals. These have to be presented in front of the top-management including the board – how to monitor and reach them.
- Monitoring: not only consider which costs arise and which result occurs with the actions, but also the effects that emerge (are important), the field of responsibility. Which value-adding aspects are being addressed in the social and environmental areas – In the monitoring of the goals (setting goals and getting there) all three columns of sustainability are taken into account.
- In the process of setting goals not the ecology is point of measure but rather economic aspects. This is caused by orientation as an economic company and the need to offer an attractive economic cockpit for shareholders. "We align our portfolio only with topics, which are improving the world."
- The balance between those topics is always in focus. One must not burden another, topics should support each other. "It should never be an 'either' -or, it has to be an 'and'."

*What has already been done to improve sustainability?*

Some Examples

### *Economical*

- Innovation goals

### *Ecological*

- Energy- and Resource efficiency
- Environmental protection
- Climate protection

### *Social*

- Lies
- Family and the job
- Diversity
- Employee fluctuation
- Fulfil/Satisfy human rights

*Who is responsible for sustainability on the operative level?*

- Sustainability coordination – in this department topics are being coordinated, impelled and controlled. The goal is, to use those topics within communication.

*What is your responsibility regarding Corporate Sustainability?*

- Sustainability coordination

*To what degree is your Business Process Management already established in your company?*

- Very well established
- The systematic approach of controlling, aligning, measuring and designing.

*To what degree are Corporate Sustainability and Business Process Management linked?*

- Hence on the systematic part: to do the evaluation and voting in the same way every time – it's always the same process, always the same evaluation criteria, the same flow of information, the same management tools and the same boundaries.
- PDCA-Cycle – the plan of the project, risk analysis, define objectives, guidance, KPI - a road map of what to do.
- The implementation responsibility are still holding the departments.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- The systematic approach is a basic concept by now.
- The topic has been part of the company for years, so there are no major problems with it.

### *Difficulties*

- If people from management don't communicate the topic or send different signals.
- The regulative system of Germany

### *Success Factors/Requirements*

- Communication – to clearly transport the greater context
- Get the employees on board
- Plausibility of the topic
- Consequences, if the goal is not achieved

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- Sustainability-check
- At the beginning a stakeholder analysis should be done – it has to be clear which areas should be approached and therefore the knowledge of the own company at its surroundings is necessary. Which topics are important and which are not relevant.
- With that the relevant topics can be derived. Then every topic is evaluated: what is important, what are the possibilities and risks.

*Is there anything you want to add?*

- "We have to find the adjective again." (At the moment sustainability is more like a label but it should become a way of behaviour again.)

*Comment*

- The respondent herself has great interest in sustainability and has been working on the topic for some time. She has a broad knowledge in this area.
- Very open interview
- Information was gladly shared.
- Great interest in the results.
- The company is very active in the area of sustainability and has already developed new business models from it.
- The topic is very intrinsically driven and not by external pressure – this leads to a very own view on the subject, it is not perceived as a duty or risk.

**Transcript of the interview with company L, 28.07.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix R. Interview Company M

Industrial Sector:	Public Sector
Employees:	> 1,500
Interviewee Position:	Sustainability Management
Interviewee Seniority:	6 years
Interview Settings	16.08.17; on-site

*How is Corporate Sustainability defined in your company?*

- TBL

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Start of the topic through the preparation of the first sustainability report. At that time there was no sustainability management.
- However, the corporate strategy was already subdivided into the areas of the TBL – this can also be found in the BSC. → Sustainability Report in order to be able to communicate this.
- Sustainability is already part of the company's vision.
- Sustainability has already been a relevant topic for some time, the report is the communication tool.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Image improvement
- Take care about the SDG's

*What has already been done to improve sustainability?*

- Involvement of stakeholders
- Definition of the sustainability programme with goals and actions
- "And this topic strategy connection and connection to the processes, which is somehow your topic. Where I still see a big gap (laughs) to what could be and what could be improved."

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- Health care
- Health measures: Sport, Yoga, Training on the Job
- Customer service

*Who is responsible for sustainability on the operative level?*

- Sustainability is located in the plant management
- The interviewee is responsible for sustainability
- There is a working group with representatives from all department. The working group assumes the operational work and the responsibility that measures are implemented. Furthermore the data were collected and the report is written.
- The upper management levels and the strategy department are actually involved in everything.
- Large measures/changes run together with the strategic controlling

*What is your responsibility regarding Corporate Sustainability?*

- Sustainability management
- Sustainability management includes: Report, communication, internal campaign, develop and implement measures (this is done in close cooperation with the strategy department, all departments are involved)

*To what degree is your Business Process Management already established in your company?*

- Not existent

*To what degree are Corporate Sustainability and Business Process Management linked?*

- There needs to be an integration – "Yes, definitely".

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- Stakeholder survey
- Themes and goals are defined.
- Implementation plan that includes the different goals and measures including indicators → sustainability programme.
- Regular PDCA cycles
- Measures are passed on directly to the responsible person, who are supported as far as possible by the sustainability management.
- "That something did not work at all, because there was no willingness to get involved, or, that did not happen in this sense."

*Difficulties*

- Monitoring and the implementation of measures → the responsible decide by themselves. Actually, only the plant management can keep track because the sustainability management does not have the necessary competences.
- Concretion of what needs to be done, how and where
- Communication
- Arouse interest, especially in the operative area. Despite different measures such as employee newspaper, executive letter, the employees do not feel addressed.
- Capacity problems (the respondent is solely responsible. If she/he does not keep track on the measures it can occur that nothing happens).

*Success Factors/Requirements*

- Understanding of the meaningfulness.
- Clarification of the benefits for yourself and the own department.
- Internal communication
- Sustainability report
- Transparency

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- A system that records the sustainability data that allows the assignment of work packages and thus simplifies monitoring.
- Structured data collection, automatic, systematic and clear
- Clear task distribution

- Standardization of the process.
- It must be clear to all, especially to the leaders, that the topic needs to be considered.
- The topic has to become even more part of the daily work.

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- No answer

*Is there anything you want to add?*

- Reporting is a good starting point to start and gives a lot of help. It brings a certain commitment to the subject, because you have to commit yourself, formulate things and write them down.
- You have to formulate management processes, you have to develop a strategy and you have to involve stakeholders.
- Processes are being developed towards sustainability, measures planned, key figures deposited.
- Connection with the strategy – initiating the continuous improvement process towards sustainability.

*Comment*

- Focus on the sustainability reporting
- The company has no Business Process Management.
- Very open and detailed interview.
- The sustainability reporting is established and standardized. The implementation of new measures and the further development of sustainability is still in its infancy and has not yet arrived in the company.



**Transcript of the interview with company M, 16.08.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix S. Interview Company N

Industrial Sector:	Electronic Industry
Employees:	> 11,300
Interviewee Position:	Project Manager CSR
Interviewee Seniority:	No information
Interview Settings	14.08.17; by phone

*How is Corporate Sustainability defined in your company?*

- TBL
  - SDGs
  - Sustainability applies in terms of how the profits is earned and not how the profit is used.
- To what degree is sustainability a relevant topic in your company? What is your motivation?*

- Sustainability is a self-concept for the company, as a family business.
- Goal is the anchoring of sustainability in the value chain.
- Motivation for sustainability as a mixture of customer requirements and self-propulsion.
- The company is not subject to the reporting obligation.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- Determination of goals via stakeholder survey and the resulting materiality matrix.
- In the future, the goals will also be connected with measures – measures are audited.

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- No answer

*Who is responsible for sustainability on the operative level?*

- Responsible for sustainability is the corporate communication – this is where the strategic guidelines are set. This sets the strategic framework and the main topics. For the definition the different divisions are responsible.
- A CSR department is not existent
- For the different topics responsible on the operational level are defined.

*What is your responsibility regarding Corporate Sustainability?*

- The interviewee is responsible for the sustainability strategy

*To what degree is your Business Process Management already established in your company?*

- The topic of sustainability is much more effective if it is anchored in the processes – sustainability aspects in the processes. "Because everyone then takes this aspect into account and says: What can I do then, where do I still have a set screw here?"
- "I think this only works if there is an anchorage there."

*To what degree are Corporate Sustainability and Business Process Management linked?*

- The topic of sustainability is much more effective if it is anchored in the processes – sustainability aspects in the processes. “Because then everyone takes this aspect into account says: What can I do, where do I still have a screw here?”
- “I think this only works if there is an anchorage.”

*Which processes have the greatest impact on improving Corporate Sustainability?*

- No answer

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- No answer

*Difficulties*

- No answer

*Success Factors/Requirements*

- There have to be guidelines from the executive board.
- Commitment of the executive board that the topic is important.
- Clear statements and targets
- Strategic anchoring
- Understanding
- Targets must be defined and deposited with key figures, also in the longer term. The development must be comprehensible in order to check whether the company is developing in the right direction or whether it needs to readjust. This already works in environmental management, as certain processes must be defined and key figures stored.

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- The value needs to be clear.
- Link with the value chain
- The people need to be convinced.
- The method must be customized to each company, especially to the specific value chain.
- "It must be supportive in the processes and not just put something back on again" – where can it be linked to something that is already there.
- The method must make work understandable and easier.
- Consideration of the corporate culture

*Is there anything you want to add?*

- It has to be clear to the companies that they have to be active on a small and a large scale and that they have to take care about the actual development and have to counter them.
- The reasons and benefits must be clarified and you have to get away from sustainability just out of a risk analysis (legal, political, market, customers). There are opportunities in this topic, you have to find them.

- What positive influence can sustainability have on the business model? You have to think about processes and products that are about this topic.
- Anchoring the value chain.

*Comment*

- The company is currently undergoing restructuring. In this context the topic sustainability is also being reorganized, which is why not all questions could be answered.
- The interviewee was very unsure about her answers in the beginning and was afraid to say something wrong, this became better in the course of the interview.

**Transcript of the interview with company N, 14.08.2017**

*Transcript has been removed due to Copyright restrictions.*

## Appendix T. Interview Company O

Industrial Sector:	Transport Industry
Employees:	> 25,000
Interviewee Position:	Head of Corporate Sustainability
Interviewee Seniority:	17 years
Interview Settings	05.10.17; by phone
An audio recording was not permitted by the company, as a result no transcript of the interview is available	

*How is Corporate Sustainability defined in your company?*

- TBL

*To what degree is sustainability a relevant topic in your company? What is your motivation?*

- The company decided at this time to give greater weight to the subject of sustainability and expand it further. It was about integrating the topic in all areas of the value chain: product innovation, product development, production, logistics, supply chain.
- The company wants to encourage its customers to develop sustainability into a hard fact in evaluating suppliers to have a sustainability business case for themselves.

*What goals does your company want to reach in the area of sustainability? How are these goals measured?*

- The sustainability efforts are primarily about the products. The products should be designed sustainable during the development. The energy efficiency, noise reduction, the avoidance of hazardous substances, especially with regard to the recycling ability of the products and safety matters.
- The goal is that sustainability will be a further awarding element in addition to the price. Of course, the price is still the dominant criterion because economic sustainability is the foundation of every business. The company must be able to survive in the first place. Nevertheless, the market is developing in a direction in which sustainability plays an increasingly important role. This development corresponds to an e-function and is not linear. The company dares, or has the courage in this case to actively participate in this development and to influence the customers, although it usually works the other way around in this industry.
- However, this courage is always urgently needed in the area of sustainability, only in this way can the subject evolved.

*What has already been done to improve sustainability?*

*Economical*

- No answer

*Ecological*

- No answer

*Social*

- The social area is internally supported e.g. volunteering, donations, help for refugees, but above all through an external partner.

*Who is responsible for sustainability on the operative level?*

- Head of Corporate Responsibility

*What is your responsibility regarding Corporate Sustainability?*

- At the operational as well as at the strategic level the interviewee is primarily responsible. His position is very high in the company. His boss is the board.  
The goals for sustainability are decided on in a committee in which the executive board and the top department heads are represented.

*To what degree is your Business Process Management already established in your company?*

- No answer

*To what degree are Corporate Sustainability and Business Process Management linked?*

- Sustainability definitely has to be integrated at the operational level. It has to become part of the company, only in this way it can be successful.  
The company is already on a very good way.

*Which processes have the greatest impact on improving Corporate Sustainability?*

- The process with the greatest leverage for sustainability is at the forefront of the value chain, or a little earlier, it starts with strategy development. Already here, sustainability has to be considered, otherwise it will be very difficult to integrate the topic at later points. If the topic is integrated into the strategy, the biggest lever is product innovation and development, since it sets the course for everything that follows later, such as: Energy efficiency or recycling ability. Then there are only make or buy decisions that need to be made, but the sustainability of the product itself has already been determined.

*What has already been done to improve sustainability through the integration into Business Process Management?*

- No answer

*How did the projects of improving sustainability go?*

- There is always a process behind sustainability.
- First of all a sustainability road map is drawn in the committee, which is approved by all involved. This road map has a five year horizon.
- At the division level (logistics, supply chain, production, etc.) goals are defined which the respective area managers take along.
- These goals are then taken into account in the strategy development, for the respective area and are thus brought to the operational level.
- The goals of sustainability are part of the personal target agreement of each division(al) man.
- This integration into the target system helps to build some pressure and achieve the goals. However, this would not be necessary in the company, since sustainability has become an intrinsic interest in the meantime.
- The company also took some risk when it decided to invest in this topic, e.g. through a greener energy mix, through the use of photovoltaic systems, all this costs more money. But the company is convinced that a business case for sustainability will develop over the next few years.
- All sustainability goals are tagged with metrics and tracked, and the progress is measured. Sustainability measures are treated and monitored like all other measures.

*Difficulties*

- What makes the job very difficult is that sustainability is always directed towards the future and not retrospective. However, you don't know who will develop the topic in the future. Currently there are different laws, different specifications in all countries. Then there are guidelines from associations and that makes it very hard to find your way. It would be very helpful if there was a standard and you had a globally recognized system/ standard for sustainability.

### *Success Factors/Requirements*

- Success factors for sustainability projects are difficult to name. However, the topic needs to be visible, the company must demonstrate that it is willing to devote more resources to it and the sustainability department must have power. In this company, this is already showed in the product development. All products will only continue if the sustainability department has also approved the product. The company has also hired extra sustainability experts for product development who pay attention to eco-design. Above all, the commitment of the management is particularly important for the advancement of sustainability, only then the company has the right basis.
- It is always an advantage if the sustainability manager has been with the company for some time and, above all, is known. So it is much easier to enforce certain goals and also to get the others to participate. The experience in the quality area is also very helpful, because in some aspects this is comparable to sustainability. Although there is much more freedom in the area of sustainability, there are just as many interfaces.

*Is there anything you would have liked to know beforehand?*

- No answer

*What would have been helpful, under what circumstances would the project have been more successful?*

- No answer

*What would you do different if you had to manage a similar project again?*

- No answer

*Regarding a method which would improve sustainability with the help of Business Process Management, what would be important for you?*

- How the method that is going to be developed should look like is hard to say. Above all, the lack of resources makes the job difficult. Basically, a method must always be easy to understand and transparent. It is important to be able to understand how data entered is processed. You do not want to buy a black box. The method should also become a globally recognized standard, which should enable the comparability.

*Is there anything you want to add?*

- Sustainability must become an added value.
- Sustainability always needs a network to get ahead. It makes more sense to get involved and organized in associations. So you are able to develop faster standards that are globally recognized. This is an important point to avoid distortion of competition. There must be a standard for sustainability that is globally accepted and applied by everyone equally. So that you can compare at least in your own industry.
- The company is also actively involved and also tries to cooperate with standards and legislation.

### *Comment*

- The audio recording did not work for this interview. The answers were written down from memory. The interviewee checked his answers.
- The interview was very good and the interviewee is an expert in the area of sustainability and its integration on an operational level.
- The company is very active in area of sustainability and sees it not as an add-on, they try to establish sustainability as a hard fact on the market.



## Appendix U. Validation Company A

Company A –Manager Sustainability

14.05.2018 on-site

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree      Agree      Partly      Disagree      Strongly Disagree

x				
1	2	3	4	5

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

-It definitely represents the actual problem. It is a continuous process.

*Is there anything relevant missing?*

-Governance, how is the topic anchored within the organisation. Still it is often a problem that it is not clear who is responsible for the topic, and also there are no responsible persons defined within the different sections of the company.

### Evaluation of the Framework

*How is your overall impression of the framework?*

-The respondent sees the framework as very helpful to structure the integration approach. Some aspects are already applied within the company.

-The feedback loop is very important.

-Integration always needs to be a continuous process.

-Very good is the evaluation of the processes. Although it is necessary to have detailed knowledge about the processes, including relevant data. The goals should be selected with respect to each process.

*How would you assess the applicability of the framework?*

Very good      Good      Satisfactory      Sufficient      Insufficient

x				
1	2	3	4	5

-Before each process is evaluated it would be better, they should be clustered roughly and the relevant goals should be selected, to prepare the matrix. It then will be easier for the process owner to fill out the matrix. The process owner also needs to have all relevant information, to assess the process. The preparation needs to be done by the sustainability department.

*Does the framework help to overcome the existing difficulties?*

Strongly Agree      Agree      Partly      Disagree      Strongly Disagree

	x			
1	2	3	4	5

-The framework identifies the relevant topics, although it still has to be applied.

-It helps to evaluate each process. The company is already doing something similar in for the ecologic aspects of sustainability.

-It helps to build awareness. The connections have to be clear and also the aims that the company wants to achieve.

-It gives a theoretical foundation for measurement and accordingly a benchmark.

-Also the significance is increasing.

*Does the framework meet the identified requirements?*

- *Allow to detect the performance gap of business processes regarding sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-The framework structures the approach, but the goals and their relevance are still needed.

- *Support the integration of sustainability into processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Strategic approach

- *Provide a means of benchmarking*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		x
1	2	3	4	5

- *Promote the internal marketing of sustainability throughout the company*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-Supporting tools would be necessary.

- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-It has to be done as a continuous process.

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-It makes clear, which are the most important issues.

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Premises must be given

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

- *Allow to identify the relevant topics*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-The framework describes, that this has to be done, but not how.

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-The doing is still missing.

*Where do you see possibilities for the improvement of the developed framework?*

-The premises have to be clear, that the framework can be applied

-SBSC should be part of the definition of the KPI. These can also be used for the communication.

-Stakeholder analysis and materiality matrix are the basis for the process evaluation.

-Governance, sustainability needs to be anchored also within the organisation.

-Description of the processes could be more detailed, it should be like a normal process description. Then the integration process could be integrated in the process map of a company. Also a process owner could be announced for this process and other responsible persons.

## Appendix V. Validation Company D

Company D – Manager Sustainability

11.05.2018 via videoconference

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree

Agree

Partly

Disagree

Strongly Disagree

x				
1	2	3	4	5

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

-It definitely represents the actual problem.

*Is there anything relevant missing?*

-No

### Evaluation of the Framework

*How is your overall impression of the framework?*

-It is very conclusive.

-It includes the logic of the PDCA-cycle and displays what needs to be done at each stage, as well on the content level, as on the procedural level.

-The framework is tangible and applicable, as a whole.

-A simple approach.

*How would you assess the applicability of the framework?*

Very good

Good

Satisfactory

Sufficient

Insufficient

	x			
1	2	3	4	5

*Does the framework help to overcome the existing difficulties?*

Strongly Agree

Agree

Partly

Disagree

Strongly Disagree

	x			
1	2	3	4	5

-Still the employees are central.

*Does the framework meet the identified requirements?*

- Allow to detect the performance gap of business processes regarding sustainability

Strongly Agree

Agree

Partly

Disagree

Strongly Disagree

x				
1	2	3	4	5

- *Support the integration of sustainability into processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Provide a means of benchmarking*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
				x
1	2	3	4	5

-Processes are not comparable. The assessment is too subjective.

- *Promote the internal marketing of sustainability throughout the company*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

-Communication must be about story telling.

- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

-The framework is more static.

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

-The framework raises lots of questions beforehand.

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-The framework is very general, consequently it can be applied to different companies and branches.

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-Selection of the right processes has to be done.

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5



- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

- *Allow to identify the relevant topics*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

*Where do you see possibilities for the improvement of the developed framework?*

-Provide a glossary including all premises

-Provide something, that processes evaluations can be opposed to each other. So, results can be summed up, under consideration of conflicting targets.

-Defined goals should be part of management audits. They can also be anchored within the target agreement.

**Comment:**

The respondent was not willing to answer all questions.

## Appendix W. Validation Company H

Company H – Manager Environment

22.05.2018 via phone

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
X				
1	2	3	4	5

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

-Actually many changes are happening in the company and lots of development can be observed regarding sustainability. However, the description of the results present the actual problem, especially the complexity of the topic.

-The company of the respondent is working for a long time on sustainability. Due to this fact, they are further in the development than other companies are.

-The interviewee observed similar development with their customers and suppliers. The significance of sustainability is increasing over the last years. Even in the last month a development could be observed. At the beginning most companies are focusing on the environmental aspects because they can be connected to financial benefits. Now most of the companies consider all three bottom lines. Although the respondent believes that social aspects of sustainability are still missed out. More companies name responsible persons for sustainability.

-The development of sustainability is getting faster. The topic has very much changed. It is not enough to publish a sustainability report. The stakeholder including the public are increasingly sensitive regarding sustainability.

-Of course, the observations are specific for the branch.

-Nevertheless, the problems still exist and will exist in the future. The integration needs to be pushed forward extensively. Experts and resources are still missing in this area.

*Is there anything relevant missing?*

-No.

### Evaluation of the Framework

*How is your overall impression of the framework?*

-The respondent is very contented with the framework. The complexity of the topic is very good captured, although it is only based on the interviews and literature.

-The complexity is very good captured and presented. It is a very big task to become sustainable, which can't be managed with a few weeks. This is very clearly presented.

-The application itself very much depends on the context of the company. Which processes have an influence/ impact on the goals?

-The respondent feels quite comfortable with the framework and can reflect the own company in the framework. They also classify their suppliers and customers regarding their maturity.

-The development of the framework is very good comprehensible as well as the application of it. It presents the main steps that have to be conducted to become sustainable.

*How would you assess the applicability of the framework?*

Very good	Good	Satisfactory	Sufficient	Insufficient
X				
1	2	3	4	5

The respondent would proceed in the same way and conduct the same steps. The applicability is very good. Although it is not a detailed guidance.

*Does the framework help to overcome the existing difficulties?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
X				
1	2	3	4	5

*Does the framework meet the identified requirements?*

- Allow to detect the performance gap of business processes regarding sustainability

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	X			
1	2	3	4	5

It definitely helps to identify the performance gap, though the definition of sustainability goals is very difficult. Lots of data are necessary and all conflicting targets need to be considered.

- Support the integration of sustainability into processes

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
X				
1	2	3	4	5

The problem is considered in its whole complexity and one will know how the business processes influence the sustainability goals.

- Provide a means of benchmarking

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		X		
1	2	3	4	5

This can only be done on a very superficial level. It depends on the openness of the companies.

- Promote the internal marketing of sustainability throughout the company

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

Through the application of the framework employees are confronted with the topic. The topic will become more known at the understanding will increase.

- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

Depends on the reengineering of the processes.

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
X				
1	2	3	4	5

Through the integration of sustainability into the processes it becomes part of the daily work.  
Also maturity is increasing through the application of the framework.

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

Sustainability needs to be defined considering the company's specifics and it needs to be concretised. What does the three bottom lines mean to the company?

The employees need to be part of it and they must be able to understand the definition, for a successful execution of sustainability.

Each model needs to be adapted.

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

More effort is necessary.

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

The value chain could be more emphasized in the framework. Although this could not be done by a company from the beginning on.

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

Could be more emphasized and presented in more detail. A risk analysis should be included.

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

- Allow to identify the relevant topics

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

The main areas that need to be considered are presented in the framework.

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

The company of the respondent is further developed. Three years ago the framework would have been very helpful. It definitely helps companies that are beginning with the integration of sustainability.

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

The framework helps to begin the integration of sustainability. It presents the main steps.

*Where do you see possibilities for the improvement of the developed framework?*

-Risk Analysis

## Appendix X. Validation Company P

Company P – Manager Business Process Management

23.05.2018 on-site

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree      Agree      Partly      Disagree      Strongly Disagree

1	2	3	4	5

-The integration of sustainability was not a problem to the company at all. Sustainability has no significance to the company.

-The only become active if there are any relevant legal regulations or if there were any customer requirements.

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

-Cannot be evaluated by the respondent.

*Is there anything relevant missing?*

-Cannot be evaluated by the respondent.

### Evaluation of the Framework

*How is your overall impression of the framework?*

-It is logical comprehensible. It can be compared to the implementation of BPM.

-The framework is very understandable.

-The step from the framework towards the application has still to be done, which is quite difficult. The company did not think about sustainability a lot, until now.

*How would you assess the applicability of the framework?*

Very good      Good      Satisfactory      Sufficient      Insufficient

x				
1	2	3	4	5

-It is comprehensible. The right and important inputs are covers by the framework, these are also important to the company.

-The procedure is comprehensible, especially the controlling with the help of KPIs.

-It might be a good idea to define goals for each employee.

*Does the framework help to overcome the existing difficulties?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-It is definitely a framework that will help. However, experience in the area of BPM is necessary to be able to understand each step.

-Change Management should be also part of the framework.

-The framework can be used on a strategic level.

*Does the framework meet the identified requirements?*

- *Allow to detect the performance gap of business processes regarding sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-Premises are that goals have to be defined clearly and relevance has to be assessed correct. Also the correct processes have to be selected. The content for the assessment is important. But it can be done with the help of the framework.

- *Support the integration of sustainability into processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Provide a means of benchmarking*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

-Cannot be evaluated by the respondent.

- *Promote the internal marketing of sustainability throughout the company*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

-Communication is a separate topic, which is quite important.

-Communication has to be on the content level, not on the strategic level.



- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Processes are only changed during process reengineering. It depends on what needs to be changed.

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-Framework gives hints, but the difficulty lies within the application of it.

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

-The company did not consider to find a definition for sustainability until now.

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Due to the high degree of abstraction.

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-Selection of the right processes has to be done.

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

- Allow to identify the relevant topics

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
1	2	3	4	5

-Cannot be evaluated by the respondent.

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-The framework shows the relevant interfaces to the operational level, and how sustainability should be integrated on that level. But it cannot be used to explain the problem.

-The framework is designed to be used by the operations management on a strategic level not for the concrete application on the operational level.

-Employees on the operational level will have difficulties to understand the framework.

*Where do you see possibilities for the improvement of the developed framework?*

-Details, including best practices, literature, should be given, in the description, to each aspect.

## Appendix Y. Validation Company Q

Company Q – Manager Environment and Safety

05.06.2018 phone

### Evaluation of the Problem Statement

*Is the integration of sustainability into the corporation still a relevant problem to your company?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	X			
1	2	3	4	5

*Does the description of the results of the interviews present the whole problem regarding the integration of sustainability?*

-It does. It is still a quite relevant problem to the company

-The sustainability strategy is not part of the overall corporate strategy. This makes the integration quite hard. It needs to be part of the overall corporate strategy.

*Is there anything relevant missing?*

-Within the company shareholders were a quite important trigger. The company was quoted at the stock exchange and ratings were very important for the evaluation of the shareholders.

-Sustainability is very complex, the integration of the different areas is at very different stages of development. This leads to a management conflict on the one hand the goal is to be sustainable on the other hand no additional resources are available

-Lots is done on the operational level, although the middle and higher management needs to be engaged

-Performance Indicators are not the way to be sustainable, but here most managers are used to work with indicators. For sustainability it is necessary to predict what is going to happen in the future, what the company has to adapt to be prepared for the future and not to measure what already has happened

### Evaluation of the Framework

*How is your overall impression of the framework?*

-The framework is very logical and the respondent can see his/ her work within the framework

-The integration of the maturity seems very exciting. In a classical management system we use the PDCA but we do not define where the goal of our development is

-Very important is to set a frame, something that can be used to measure the own development – it gives all a positive connotation

-The respondent definitely sees the possibility to apply the framework within the company. The company is actually working on this problem and the framework will help.

*How would you assess the applicability of the framework?*

Very good	Good	Satisfactory	Sufficient	Insufficient
x				
1	2	3	4	5

-No big obstacles. The company has only to decide on which process level needs to be considered. How many details need to be considered? This depends on the process map of the company.

-It is important to define responsible persons.

*Does the framework help to overcome the existing difficulties?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Definitely, we have actually the problem that we need to work out a new strategy for sustainability. The framework will help us to thin through the problem.

*Does the framework meet the identified requirements?*

- *Allow to detect the performance gap of business processes regarding sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-The main purpose of the process should also be considered.

- *Support the integration of sustainability into processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-This connection is displayed for all steps of the framework.

- *Provide a means of benchmarking*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-A benchmark on the process level is definitely possible, but not a benchmark for the company. For this already, ratings and indices exist.

-But more important is the comparison within the company.

- *Promote the internal marketing of sustainability throughout the company*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

-Yes because the framework helps to makes the topic more systematically and believably.

-It helps to define the right starting points, were change is really necessary. Not like for example planting trees somewhere in the woods but do not taking about the environment on the factory premises.

-It gives a frame to the problem, it makes it believable and gives possibilities of communication.

- *Retain the legibility of processes*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Needs to be flexible*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-Yes, if you prioritise accordingly and define with which process to start

- *Provide a definition for sustainability*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-We can only make a contribution to sustainability, but the company itself cannot be sustainable. The maturity level can be used to measure the degree of contribution.

-We are all part of the environment

- *Support the definition of clear goals deposited with key figures*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

-Performance indicators do not play a role in this part of the company

-We use the SDGs and compare them with our degree of maturity

- *Be customisable to the company and the specifics of the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Be linked to the value chain*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

-Yes, but it could be emphasized more, especially for companies that are less process driven

-There should be a greater emphasize on the link. This would be important.

-Also, cross-functional processes should be considered

- *Be included in the current system*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Consider the corporate culture*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
		x		
1	2	3	4	5

- *Consider surroundings and extraneous factors*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-Only if you do a complete stakeholder analysis. All relevant stakeholders should be named within the framework, also critical ones.

- *Is iterative*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be structured and systematic*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be easy to understand*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

- *Be transparent*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

- *Allow the documentation of the improvement project*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
			x	
1	2	3	4	5

- *Allow to identify the relevant topics*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

-This strongly depends on the realisation, to what degree the inputs are analysed

-An analysis of the chances and risks need to be an input for the evaluation of processes

-Depends on the user.

*Does the framework help to improve your actual approach towards the integration of sustainability?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
x				
1	2	3	4	5

*Does the framework help to integrate sustainability on an operational level?*

Strongly Agree	Agree	Partly	Disagree	Strongly Disagree
	x			
1	2	3	4	5

This very much depends on the user of the framework. He or she needs to have some expertise in the area.

The sustainability manager will be able to do that or an external expert.

*Where do you see possibilities for the improvement of the developed framework?*

-You always need an outside view on the topic. You cannot only improve from within.

-The topic always needs to be directed to the future. The aim is to improve the processes, in such a way that the company has a better standing in the future. If this thought is integrated in the framework it will be different from normal process improvement models. This is new and also the hardest process especially on the management level.

-The company needs to develop from a reactive approach towards a proactive approach

-The maturity model needs to be further developed